



February 5, 2003

Mr. Lance Shaw
Compliance Project Manager
California Energy Commission
1516 Ninth Street, MS-2000
Sacramento, CA 95814-5512

Re: Petition For Minor Amendment to Henrietta Peaker Project (01-AFC-18)

Dear Mr. Shaw:

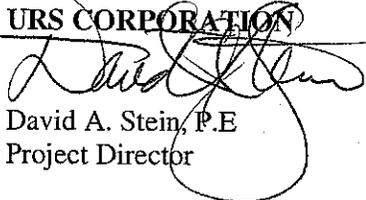
On behalf of GWF Energy LLC, enclosed are fifteen (15) copies of a petition for a minor amendment to the Henrietta Peaker Project (01-AFC-18). The purpose of the amendment is to:

- Reduce the total allowable PM10 emission rate in lb/hr, lb/day and lb/yr based on compliance source testing;
- Reduce the total PM10 emission reduction credit (ERC) requirement to correspond to the proposed lower PM10 emission rates;
- Eliminate the limitation of the number of startups per year, and
- Change the startup and shutdown emission limits from a "lb/hr" to a "lb/event" reporting basis.

The proposed PM10 emission limit amendments will reduce maximum air quality impacts from the facility relative to the impacts previously approved by the CEC and the corresponding PM10 ERCs required to mitigate the impacts will also be reduced. The proposed change in startup and shutdown emission limits will have an insignificant impact on air quality because the current maximum daily and annual emission limits (which include emissions from startups and shutdowns) will remain unchanged. Based on our review of the proposed minor amendment, the project will continue to comply with all applicable laws, ordinances, regulations and standards and there are no significant environmental impacts from the the proposed amendment. A revision to six air quality conditions of certification are proposed. These are detailed in Attachment A to the petition.

We are hopeful that this minor amendment can be reviewed and processed as soon as possible. Please contact Doug Wheeler at (925) 431-1443 or me at (510) 874-3143 if you have any questions regarding these materials.

Sincerely,

URS CORPORATION

 David A. Stein, P.E
 Project Director

URS Corporation
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Enclosure

cc: Doug Wheeler
Mark Kehoe

TECHNICAL REPORT

**HENRIETTA PEAKER PROJECT
(01-AFC-18)**

**PETITION FOR
MINOR AIR QUALITY AMENDMENT**

FEBRUARY 2003

Prepared by:

URS

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Prepared for:

GWF ENERGY, LLC

Pittsburg, California

26812777.01021

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1.0 OVERVIEW

GWF Energy, LLC received approval on March 7, 2002 from the California Energy Commission (CEC) for the Henrietta Peaker Project (HPP), a 91.4 MW peak load power plant located in Kings County, California. The HPP commenced commercial operation on July 1, 2002. A compliance source test was conducted on October 9, 2002.

This petition is to amend six air quality conditions of certification: AQ-2, AQ-17, AQ-18, AQ-19, AQ-20 and AQ-21. These are all operational limits. As such, there are no physical modifications necessary to implement the requested changes. The requested amendments would achieve the following:

- Change the startup and shutdown emission limits from a “lb/hr” to a “lb/event” reporting basis,
- Eliminate the restriction on the number of startups and shutdowns,
- Reduce hourly, daily and annual PM10 emission limits based on PM10 source test results, and
- Reduce PM10 emission offset requirements based on the lower PM10 emission limits.

This petition is very similar to petitions filed and granted to the La Paloma Project (98-AFC-2). Because the plant has already been commissioned and is in operation GWF respectfully requests that this petition be processed as expeditiously as possible.

This petition for a post-certification amendment for the HPP is being submitted under the provisions of Section 1769 of Title 20, California Administrative Code (CEC *Rules of Practice and Procedure and Power Plant Site Certification Regulations*) to seek a minor modification to the air quality conditions of certification. The petition is organized to address the informational requirements of Section 1769 in the order they appear in the section. The requirement appears in ***bold italics*** followed by a narrative response.

2.0 INFORMATION REQUIRED BY SECTION 1769

(A) A complete description of the proposed modifications, including new language for any conditions that will be affected

This petition is to amend six air quality conditions of certification: AQ-2, AQ-17, AQ-18, AQ-19, AQ-20 and AQ-21. The Petitioner proposes to reduce the PM10 emission limits. The reduction in the PM10 emission limits by the Petitioner will result in a reduction in the PM10 emission reduction credit (ERC) requirements. Maximum annual, daily and hourly emission limits during normal operation for NO_x, CO, VOC and SO₂ will not be changed as a result of the proposed amendments. Finally, the petition requests that the startup and shutdown emissions be measured on a “per event” basis and the limitation on the maximum number of startups and shutdowns be removed. Changing startup and shutdown limits to a “per event” basis will effectively increase the maximum allowable emissions for NO_x, CO and VOC emissions during these brief startup or shutdown periods. The proposed changes are summarized in Table 1 and discussed below. The proposed new language for the affected conditions is included in Appendix A. These changes have already been approved by the San Joaquin Valley Air Pollution Control District (See Appendices C, D and E).

Reduction of PM10 emission rate limitations (AQ-19, AQ-20 and AQ-21)

When the HPP was originally proposed there was very little operating experience with respect to PM10 emissions from the proposed LM6000 advanced gas turbine. The Application for Certification was based on very conservative vendor emission guarantees. The PM10 emission limits and the corresponding ERC requirements in the license were based on these conservative emission rates. Recent operating experience at GWF’s Henrietta and Hanford facilities demonstrate that PM10 emissions are substantially lower than proposed in the AFC and conditioned in the license. GWF is requesting that the CEC adjust the PM10 limits downward, leaving a safety margin for compliance, consistent with recent action already approved by the SJVAPCD (See Appendices C, D, and E). In addition, GWF

Table 1. Summary of Requested Changes to Air Quality Conditions

Parameter	CEC Condition	Original Limit	Proposed Limit
PM10 ERCs, Requirement	AQ-2	Requires owner to offset 8,850 lb/quarter of PM10	Reduces offset requirement to 700 ^a lb/quarter based on reduced PM10 emission rate
Startup and Shutdown Emission Limits	AQ-17	Emissions are limited on a lb/hour basis: NOx @ 15.4 lb/hr CO @ 15.4 lb/hr VOC @ 1.4 lb/hr	Emissions are limited on a lb/event basis: NOx @ 15.4 lb/event CO @ 15.4 lb/event VOC @ 1.4 lb/event This change will effectively increase allowable hourly NOx, CO and VOC emissions only during startups or shutdowns, since individual events are less than one hour in duration. Maximum daily and annual emission limits will not be changed.
Maximum Number of Startups and Shutdowns	AQ-18	300 startups and shutdowns	No limit
PM10 – hourly emission limit	AQ-19	Limits each unit's PM10 emissions to 3.3 lb/hr	Reduces PM10 limit to 2.0 lb/hr
PM10 - daily emission limit	AQ-20	Limits each unit's PM10 emissions to 79.2 lb/day	Reduces PM10 limit to 48.0 lb/day
PM10 - annual emission limit	AQ-21	Limits each unit's PM10 emissions to 26,400 lb/year	Reduces PM10 limit to 16,000 lb/year

^a The proposed 700 lb per quarter ERC requirement (2,800 lb/yr) represents the difference between the proposed 32,000 lb/yr limit (16,000 x 2 for both turbines) and the SJVAPCD PM10 offset threshold of 29,200 lb/yr (see SJVAPCD engineering analysis in Appendix C). It should be further noted that GWF has already provided 29,200 lb/yr of PM10 ERCs under CEQA to compensate for the SJVAPCD offset threshold and to satisfy condition AQ-C3.

is requesting that Condition AQ-21 be modified to explicitly state that startup and shutdown emissions are to be included in the measurement of annual emissions.

Reduction of PM10 ERC requirements (AQ-2)

When the HPP was originally proposed there was no operating experience with respect to PM10 emissions from the proposed LM6000 advanced gas turbine when equipped with hot selective catalytic reduction. The Application for Certification was based on very conservative vendor emission guarantees. The PM10 emission limits and the corresponding ERC requirements in the license were based on these conservative emission rates. Recent operating experience at GWF's Henrietta and Hanford facilities and elsewhere demonstrate that PM10 emissions are substantially lower than proposed in the AFC and conditioned in the license. GWF would now like to adjust the PM10 limits downward, leaving a safety margin for compliance. In addition, GWF would like to recover any surplus ERCs that would no longer be required to mitigate PM10 impacts from the HPP. The proposed change will reduce PM10 offset requirements to correspond to the lower PM10 emission rates proposed above. Since maximum PM10 emissions will be reduced, fewer PM10 emissions will require mitigation and the corresponding ERC requirements are proposed to be lowered. A complete evaluation of this request was performed by the SJVAPCD and is included as Appendix C.

Startup and Shutdown Emission Limits (AQ-17)

The proposed amendment would change the condition to measure the startup and shutdown emissions on a "per event" basis instead of a "per hour" basis. Although they are of relatively short duration, a startup or shutdown may occur over two clock-hour periods. Changing the limit to a "per event" basis would avoid the need to apply the startup/shutdown limits to both hours and would effectively clarify the measurement and enforceability of the limits. The data acquisition system (DAS) would be programmed to measure startup emissions initial fuel flow to the turbine until the unit meets the lb/hr and concentration limits as defined in AQ-18. Similarly, the DAS would be programmed to measure shutdown emissions from initiation of the shutdown sequence and ending with the cessation of the firing of the gas turbine engine.

Since startups and shutdowns are less than one hour in duration, the change to a “per event” basis will increase allowable short-term NO_x, CO and VOC only during startups and shutdowns. However, maximum daily and annual emission limits (which include startup and shutdown emissions) will remain unchanged. The potential increase in short-term emissions during startups and shutdowns has been determined to have an insignificant environmental impact (see Section E, below).

Maximum Number of Startups and Shutdowns (AQ-18)

The original condition AQ-18 limits the number of startups and shutdowns to 300 per year. Since the time of the license it has become evident that it may be necessary for individual units to respond to multiple dispatch requests from the State of California in a single day. In order to ensure maximum flexibility to respond to each dispatch request, the limitation on maximum numbers of startups and shutdowns should be removed. Since the proposed change will not increase the previously approved daily or annual emission limits, this proposed change will have no impact on the facility’s emission offset requirements.

(B) A discussion of the necessity for the proposed modifications

Reduction of PM₁₀ emission rate limitations (AQ-19, AQ-20 and AQ-21)

These changes are necessary to accurately reflect the results of recent source testing performed at HPP and to enforce GWF’s commitment to maintain lower PM₁₀ emission rates than were previously permitted. The reduction will lower the maximum air quality impacts of the facility, resulting in a net air quality benefit. In addition, modifying Condition AQ-21 to explicitly state that startup and shutdown emissions are to be included in the measurement of annual emissions will provide clarity and explicitly enforce GWF’s commitment that maximum annual emissions will not increase as a result of this proposed amendment.

Reduction of PM10 ERC requirements (AQ-2)

The change is needed in order for the amount of surrendered ERCs to match the amount of ERCs required by San Joaquin Valley Air Pollution Control District with the proposed lower PM10 emission rate limits. The condition would also allow GWF to recover surplus ERCs that would no longer be needed to mitigate the project's PM10 impacts. PM10 ERCs are in extremely short supply in the San Joaquin Valley. The proposed change would enable any ERCs to become available to mitigate the impacts of other projects in the San Joaquin Valley.

Startup and Shutdown Emission Limits (AQ-17)

The proposed change to AQ-17 is necessary to simplify the ability of HPP to accurately track startup and shutdown emissions and to simplify the ability of the CEC to enforce the condition. A "per event" basis limit would allow GWF to more easily measure emissions from startups and shutdowns and provide a better bright-line test for compliance. While the change will increase maximum emissions only during startups or shutdowns, the change will not increase maximum daily or annual emission limits. Modeling has been performed to demonstrate that these short-term emission increases will have an insignificant impact on air quality (see discussion under Section E, below)

The change is also necessary to provide consistency with the SJVAPCD Permit to Operate for the facility.

Maximum number of startups and shutdowns (AQ-18)

The change to AQ-18 is necessary to allow HPP to have maximum flexibility to respond to dispatch requests from the State of California. Based on recent operating experience, it is now clear that the State may choose to dispatch units more than once per day for short periods of operation. HPP needs the flexibility to respond to such requests, provided that HPP will not exceed daily or annual emission limits. GWF is not proposing any change to the amount of allowable emissions over either of these averaging periods..

(C) If the modification is based on information that was known by the petitioner during the certification proceeding, an explanation why the issue was not raised at that time

The modification is not based on information that was known by the petitioner at the time of the certification proceeding.

(D) If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted

The compliance source test had not yet been performed and PM10 emission levels were based on conservative manufacturer's information. Excerpts of the source test performed July 31 – August 2, 2002 at the Henrietta Peaker Project and June 5 – 6, 2002 at the Hanford Energy Park Peaker (a virtually identical facility) are provided in Appendix B. Based on current PM10 emissions data it is possible for GWF to commit to lower PM10 emission rates. However, a change in the conditions of certification AQ-2, AQ-19, AQ-20 and AQ-21 is needed to effectuate that commitment and to enable SJVAPCD to release surplus PM10 ERCs that would longer be required to mitigate the project's PM10 emissions.

With respect to the limitation on the number of startups and shutdowns, the outlook for the California electricity market has also been significantly refined since the time of the proceeding. It was originally envisioned that peaker units would be dispatched once a day for extended blocks of time during peak loads. GWF's practical operating experience has been that individual units may be dispatched multiple times in a day for short periods of time. It is now conceivable that the HPP could be dispatched more than 300 times in a year and the requested revision of condition of certification AQ-18 would provide the State of California with the flexibility to do so.

Because PM10 impacts were found to be insignificant at the originally licensed higher PM10 emission rate and PM10 emissions will continue to be fully offset, no additional modeling analysis is needed for the requested amendment.

The proposed change in startup and shutdown emission limits to a “per event” basis limit would allow GWF to more easily measure emissions from startups and shutdowns and provide a better bright-line test for compliance. While the change will increase maximum emissions only during startups or shutdowns, the change will not increase maximum daily or annual emission limits. Modeling has been performed to demonstrate that these short-term emission increases will have an insignificant impact on air quality (see discussion under Section E, below).

(E) An analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts

Reduction of PM10 emission rate limitations and ERC Requirements (AQ-2, AQ-19, AQ-20 and AQ-21)

No additional dispersion modeling analysis of the proposed lowering of PM10 emission limits is needed because the requested changes will lower the maximum PM10 air quality impacts from the facility. The environmental features of the HPP as previously described in the 01-AFC-18 evidentiary record will remain substantially unchanged as a result of this post-certification amendment (PM10 impacts will actually be less than previously described and approved). The original, higher PM10 emission levels were previously found to have an insignificant impact. PM10 emission impacts from the facility will still be fully mitigated and there will continue to be no significant adverse air quality impacts.

Startup and Shutdown Emission Limits (AQ-17)

The proposed change from a “lb/hr” basis to “lb/event” basis will have the potential to increase emissions during a startup or shutdown. A reasonable worst case hour would consist of both units experiencing a 10-minute startup, 40 minutes of full load operation and a 10-minute shutdown in a single hour. The emissions associated with this scenario are calculated in Table 2 below:

Table 2. Summary of Proposed Worst-Case Hourly Startup and Shutdown Emissions^a

Pollutant	Startup, lb	Full Load Operation ^b , lb	Shutdown, lb	Total, lb/hr
NOx	15.4	8.28	15.4	39.08
CO	15.4	8.33	15.4	39.13

^a Assumes a 10 minute startup, 40 minutes of full load operation and a 10 minute shutdown in a single hour.

Emissions are reported as combined emissions of both units, as specified in AQ-19.

^b Maximum hourly emissions in AQ-19 x 40/60 x 2 units

Worst-case modeling results previously reviewed and approved (Data Response 5, November 2001)¹ to determine emission impacts from commissioning were described in the December 19, 2001 Staff Assessment (Air Quality: Table 13, page 3.1-28) and previously reviewed and approved by the CEC in its Final Decision (Commissioning and Startup, pages 28 and 29). The commissioning analysis assumed higher short-term emission rates than are now proposed for startups and shutdowns as demonstrated in Table 3. Since the commissioning impacts were found to be insignificant, it follows that the proposed new startup and shutdown emission rates (which are lower than the insignificant commissioning emission rates) should also be considered insignificant.

Table 3. Summary of Worst-Case Air Quality Impacts During Startup and Shutdown

Pollutant	Maximum Combined Startup and Shutdown Emissions, lb/hr	Combined Emission Rate Assumed for Commissioning ^a , lb/hr
NOx	39.08	52
CO	39.13	88

^a Emissions are reported as combined emissions from both units. The commissioning analysis was performed with each unit operating at the following emission rates: NOx – 26 lb/hr, CO – 44 lb/hr. These emission rates are double in the table to reflect the combined emissions from both units.

¹ Data Response 5 provided an updated air quality impact analysis for commissioning emissions. The analysis is applicable because the relevant stack parameters (temperature and velocity) are the same as was assumed for startup and shutdown.

Maximum Number of Starts and Shutdowns (AQ-18)

Since the proposed change will not result in an increase in either maximum daily or annual emissions, there is no potential to change previously evaluated and approved insignificant impacts to 24-hour and annual ambient air quality standards. Since the proposed change in the startup and shutdown emission limits to a “per event” basis has the potential to increase maximum short-term emissions, these potential impacts are evaluated above (see Startup and Shutdown Emission Limits (AQ-17), above) for applicable short-term standards for NO_x (1-hour) and CO (1-hour and 8-hour). That evaluation demonstrates that impacts associated with changing the basis of the startup and shutdown emissions will be insignificant.

No Other Environmental Impact Topic Areas Are Affected By This Amendment

There are no changes to previously reviewed and approved impacts of any other environmental impact topic area as a result of the proposed amendment. Therefore, no additional analysis is required for any other environmental impact topic area

(F) A discussion of the impact of the modification on the facility’s ability to comply with applicable laws, ordinances, regulations, and standards

The proposed amendment will only lower maximum PM₁₀ emissions. The HPP will continue to comply with all applicable laws, ordinances, regulations and standards. The SJVAPCD has prepared an engineering analysis for the proposed changes and issued revised Authorities to Construct and Permits to Operate based on expected compliance with all applicable air quality regulations and standards (see Appendices C, D and E).

(G) A discussion of how the modification affects the public

The proposed revisions will have a positive impact on the public, as the maximum allowable PM₁₀ emission impacts from the facility will be reduced upon approval of this petition. The proposed for new startup and shutdown emissions limits do not increase impacts above those that have already been reviewed by the public during the original siting case. In addition, there are no impacts to any other environmental impact topic area from the proposed changes. Finally, the proposed amendments will enhance the flexibility of the HPP to respond to future requests by the State of California for peak load power.

(H) A list of property owners potentially affected by the modification

The are no property owners that will be affected by the proposed modification. The property owners list previously made a part of the evidentiary record is current, and is attached (See Appendix F).

(I) A discussion of the potential effect on near by property owners, the public and the parties in the application proceedings

The proposed revisions will have a positive impact on the property owners, the public and other parties. The proposed amendments will implement improvements in startup and shutdown emissions tracking and will provide a mechanism to reduce the allowable PM10 emissions that have already been reviewed by the public and interested parties as part of the original license proceeding. The proposed for new startup and shutdown emissions limits do not increase impacts above those that have already been reviewed by the public during the original siting case. In addition, there are no impacts to any other environmental impact topic areas from the proposed changes.

3.0 SCHEDULE

The SJVAPCD has already processed these proposed conditions and we respectfully request that the CEC incorporate these changes in the license as expeditiously as is practicable.

4.0 SUMMARY

This minor amendment will only affect air quality impacts. There are no changes to any other environmental impact area. The effect of the proposed changes is to reduce PM10 impacts providing an air quality improvement and the required PM10 mitigation. In addition, the proposed elimination of a restriction on the number of startups will enhance facility availability without increasing previously approved air quality impacts. The proposed change to startup and shutdown emission limits will not significantly impact air quality (impacts are less than HPP impacts already reviewed and approved by the CEC). The

facility will continue to comply with all applicable laws, ordinances, regulations and standards. In addition, the conclusions reached by the CEC staff and the CEC regarding the insignificant nature of the proposed air quality impacts remains unchanged as a result of these amendments. As a result, there are no significant impacts to the surrounding community associated with implementing the proposed changes.

APPENDIX A

Proposed Revisions to Conditions of Certification

Appendix A Proposed Revisions to Conditions of Certification

AQ-2: Upon implementation of ~~C-3929-1-0~~ **C-3929-1-2** and ~~C-3929-2-0~~ **C-3929-2-2**, emission offsets shall be provided to offset emissions increases in the following amounts: PM₁₀ - Q1: ~~8,850~~ **700** lb, Q2: ~~8,850~~ **700** lb, Q3: ~~8,850~~ **700** lb, and Q4: ~~8,850~~ **700** lb and NO_x (as NO₂) - Q1: 29,055 lb, Q2: 30,210 lb, Q3: 30, 210 lb, and Q4: 29,055 lb. Offsets shall be provided at the appropriate offset ratio specified in Rule 2201 Section 4.2.4. SO_x offsets provided to offset PM₁₀ increases shall be at a ratio of 1.4:1 at the appropriate distance ratio. [District Rule 2201]

Verification: The project owner/operator shall submit copies of ERCs surrendered to the SJVAPCD in the amounts shown above to the CPM prior to initiation of project construction.

AQ-17: During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (C-3929-1 and C-3929-2) shall not exceed the following: NO_x (as NO₂) - 15.4 lb, CO - 15.4 lb, and VOC - 1.4 lb **per event** ~~in any one hour~~. [California Environmental Quality Act]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-31**.

AQ-18: Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr and ppmvd emission limits in Condition **AQ-21**. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup and shutdown of gas turbine engine shall not exceed a time period of one hour each per occurrence. ~~Startup and shutdown events shall not exceed 300 occurrences per calendar year.~~ [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-31**.

AQ-19: Emission rates from this unit, except during startup and shutdown events, shall not exceed any of the following: NO_x (as NO₂) – 6.21 lb/hr and 3.6 ppmvd @ 15 percent O₂; VOC (as methane) – 1.17 lb/hr and 2.0 ppmvd @ 15 percent O₂; CO – 6.25 lb/hr and 6.0 ppmvd @ 15 percent O₂; PM₁₀ - ~~3.3~~ **2.0** lb/hr; or SO_x (as SO₂) - 0.33 lb/hr. All emission concentration limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]

Verification: The project owner/operator shall provide records of compliance on a clock hour basis as part of the quarterly reports of Condition **AQ-31**.

AQ-20: Maximum daily emissions from this unit shall not exceed any of the following: NO_x (as NO₂) – 150.5 lb/day; VOC – 28.1 lb/day; CO – 151.5 lb/day; PM₁₀ - ~~79.2~~ **48.0** lb/day; and SO_x (as SO₂) - 7.9 lb/day. [District Rule 2201]

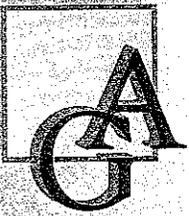
Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-31**.

AQ-21: Maximum annual emissions from this unit, ***including startup and shutdown emissions***, shall not exceed any of the following: NO_x (as NO₂) – 49,510 lb/year; VOC – 2,844 lb/year; CO – 21,830 lb/year; PM₁₀ – ~~26,400~~ **16,000** lb/year; and SO_x (as SO₂) – 2,640 lb/year. [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-31**.

APPENDIX B

Compliance Source Test Report



The Avogadro Group, LLC

SOURCE TEST REPORT 2002 EMISSION COMPLIANCE TESTS AND CEMS CERTIFICATION GWF ENERGY LLC HENRIETTA PEAKER PLANT LEMOORE, CALIFORNIA

Prepared For:

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For Submittal To:

SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT
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October 9, 2002



**TABLE 4-1
RESULTS SUMMARY
PARTICULATE MATTER EMISSIONS
100% LOAD CONDITION
HENRIETTA PEAKER PLANT
TURBINE UNIT 1**

Test No.:	1-PM-1	2-PM-1	3-PM-1	Averages
Date:	8/1/02	8/1/02	8/1/02	--
Time:	0946-1205	1242-1505	1551-1820	--
Unit Data:				
Load, megawatts	46.0	45.0	45.0	45.3
Flue Gas:				
O ₂ , % volume dry	14.60	14.64	14.63	14.62
CO ₂ , % volume dry	3.830	3.750	3.750	3.777
Moisture, % by volume	11.84	12.23	11.55	11.88
Flue gas temperature, °F	810.0	818.0	810.0	812.7
Stack flow rate, dscfm	226,869	219,382	221,475	222,575
F¹/₂ Particulate Matter:				
gr/dscf	0.0002	0.0004	0.0003	0.0003
gr/dscf @ 12% CO ₂	0.0008	0.0011	0.0010	0.0010
lb/hr	0.478	0.665	0.582	0.575
lb/day	11.48	15.95	13.97	13.80
B¹/₂ Particulate Matter:				
gr/dscf	0.0003	0.0001	0.0002	0.0002
gr/dscf @ 12% CO ₂	0.0008	0.0004	0.0006	0.0006
lb/hr	0.527	0.222	0.338	0.363
lb/day	12.66	5.318	8.124	8.700
Total Particulate Matter:				
gr/dscf	0.0005	0.0005	0.0005	0.0005
gr/dscf @ 12% CO ₂	0.0016	0.0015	0.0016	0.0016
lb/hr	1.006	0.886	0.921	0.938
lb/day	24.14	21.27	22.10	22.50

**TABLE 4-7
RESULTS SUMMARY
PARTICULATE MATTER EMISSIONS
100% LOAD CONDITION
HENRIETTA PEAKER PLANT
TURBINE UNIT 2**

Test No.:	1-PM-2	2-PM-2	3-PM-2	Averages
Date:	7/31/02	7/31/02	8/1/02	--
Time:	0925-1334	1406-1614	0638-0848	--
Unit Data:				
Load, megawatts	46.3	45.0	47.3	46.2
Flue Gas:				
O ₂ , % volume dry	14.73	14.67	14.72	14.71
CO ₂ , % volume dry	3.701	3.730	3.728	3.720
Moisture, % by volume	11.39	12.04	11.54	11.66
Flue gas temperature, °F	806.0	814.6	806.0	808.8
Stack flow rate, dscfm	224,769	228,091	230,677	227,845
F¹/₂ Particulate Matter:				
gr/dscf	0.0003	0.0003	0.0003	0.0003
gr/dscf @ 12% CO ₂	0.0010	0.0008	0.0009	0.0009
lb/hr	0.583	0.502	0.562	0.549
lb/day	14.00	12.06	13.50	13.19
B¹/₂ Particulate Matter:				
gr/dscf	0.0004	0.0003	0.0003	0.0003
gr/dscf @ 12% CO ₂	0.0014	0.0010	0.0009	0.0011
lb/hr	0.803	0.624	0.545	0.657
lb/day	19.27	14.98	13.09	15.78
Total Particulate Matter:				
gr/dscf	0.0007	0.0006	0.0006	0.0006
gr/dscf @ 12% CO ₂	0.0023	0.0019	0.0018	0.0020
lb/hr	1.386	1.126	1.108	1.207
lb/day	33.26	27.03	26.59	28.96

TABLE 4-15
RESULTS SUMMARY - GASEOUS EMISSIONS
HENRIETTA PEAKER PLANT
STARTUP DATA - UNIT 2

Test No.:	Run 1	Run 3	Run 7	Averages
Date:	7/29/02	7/29/02	7/30/02	--
Time:	1759-1813	1916-1935	0921-0939	--
Unit Data:				
Fuel flow, scfh	215,493	216,835	299,221	243,850
Flue Gas:				
O ₂ , % volume dry	16.26	16.32	15.52	16.03
CO ₂ , % volume dry	2.820	2.786	3.307	2.971
Stack flow rate, dscfm	122,560	127,001	153,490	134,350
CO Emissions:				
ppm volume dry	2.426	1.167	1.289	1.626
ppm @ 15% O ₂	5.852	2.163	2.099	3.371
lb/hr (based on 1 hour)	0.899	0.469	0.640	0.649
lb/hr (actual per event)	0.225	0.156	0.203	0.195
NO_x Emissions:				
ppm volume dry	10.13	3.747	12.42	8.763
ppm @ 15% O ₂	14.67	4.452	16.12	11.74
lb/hr as NO ₂ (based on 1 hour)	8.676	4.158	12.92	8.497
lb/hr as NO ₂ (actual per event)	2.169	1.386	4.092	2.549
VOC Emissions:				
ppm volume dry	3.682	2.170	0.59	2.147
ppm @ 15% O ₂	4.678	2.798	0.65	2.708
lb/hr as CH ₄ (based on 1 hour)	1.124	0.687	0.226	0.646
lb/hr as CH ₄ (actual per event)	0.281	0.229	0.071	0.194

TABLE 4-16
RESULTS SUMMARY - GASEOUS EMISSIONS
HENRIETTA PEAKER PLANT
SHUTDOWN DATA - UNIT 2

Test No.:	Run 2	Run 4	Run 8	Averages
Date:	7/29/02	7/29/02	7/30/02	--
Time:	1825-1836	1945-1954	0948-1004	--
Unit Data:				
Fuel flow, scfh	203,242	173,127	150,500	175,623
Flue Gas:				
O ₂ , % volume dry	16.79	17.40	16.91	17.03
CO ₂ , % volume dry	2.498	2.270	2.399	2.389
Stack flow rate, dscfm	145,513	163,526	123,388	144,142
CO Emissions:				
ppm volume dry	0.517	1.606	0.563	0.895
ppm @ 15% O ₂	0.696	3.584	0.801	1.693
lb/hr (based on 1 hour)	0.420	1.325	0.290	0.721
lb/hr (actual per event)	0.084	0.243	0.034	0.120
NO_x Emissions:				
ppm volume dry	5.532	2.503	4.428	4.154
ppm @ 15% O ₂	8.622	4.679	6.948	6.749
lb/hr as NO ₂ (based on 1 hour)	5.338	2.386	3.414	3.807
lb/hr (actual per event)	1.068	0.437	0.398	0.634
VOC Emissions:				
ppm volume dry	1.820	0.750	1.929	1.500
ppm @ 15% O ₂	2.614	1.262	2.854	2.244
lb/hr as CH ₄ (based on 1 hour)	0.660	0.306	0.520	0.497
lb/hr as CH ₄ (actual per event)	0.132	0.056	0.061	0.083



The Avogadro Group, LLC

SOURCE TEST REPORT 2002 EMISSION COMPLIANCE TESTS AND RELATIVE ACCURACY TEST AUDIT GWF ENERGY LLC HANFORD ENERGY PARK PEAKERS HANFORD, CALIFORNIA

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July 30, 2002



**TABLE 4-1
RESULTS SUMMARY
PARTICULATE MATTER EMISSIONS
HANFORD ENERGY PARK PEAKER
TURBINE UNIT 1**

Test No.:	1-PM-1	2-PM-1	3-PM-1	Averages
Date:	6/6/02	6/6/02	6/6/02	6/6/02
Time:	0807-1010	1030-1235	1413-1617	0807-1010
Unit Data:				
Load, megawatts	44.0	42.6	40.9	42.5
Fuel flow, scfh	402,122	393,393	380,116	391,877
Flue Gas:				
O ₂ , % volume dry	15.00	15.06	15.13	15.06
CO ₂ , % volume dry	3.606	3.594	3.497	3.57
Moisture, % by volume	11.00	11.17	11.15	11.11
Flue gas temperature, °F	796.5	804.9	796.5	799.3
Stack flow rate, dscfm	226,582	225,725	224,853	225,720
F^{1/2} Particulate Matter:				
gr/dscf	0.0001	0.0003	0.0001	0.0002
gr/dscf @ 12% CO ₂	0.0003	0.0011	0.0002	0.0005
lb/hr	0.150	0.631	0.129	0.303
lb/day	3.604	15.14	3.108	7.284
B^{1/2} Particulate Matter:				
gr/dscf	0.0000	0.0002	0.0000	0.0001
gr/dscf @ 12% CO ₂	0.0001	0.0005	0.0000	0.0002
lb/hr	0.064	0.305	0.000	0.123
lb/day	1.545	7.308	0.000	2.951
Total Particulate Matter:				
gr/dscf	0.0001	0.0005	0.0001	0.0002
gr/dscf @ 12% CO ₂	0.0004	0.0016	0.0002	0.0007
lb/hr	0.215	0.935	0.129	0.426
lb/day	5.149	22.45	3.108	10.23



**TABLE 4-4
RESULTS SUMMARY
PARTICULATE MATTER EMISSIONS
HANFORD ENERGY PARK PEAKER
TURBINE UNIT 2**

Test No.:	1-PM-2	2-PM-2	3-PM-2	Averages
Date:	6/5/02	6/5/02	6/5/02	
Time:	0748-0954	1122-1333	1405-1614	
Unit Data:				
Load, megawatts	43.9	42.2	40.8	42.3
Fuel flow, scfh	398,175	386,061	377,332	387,189
Flue Gas:				
O ₂ , % volume dry	14.95	15.020	15.080	15.02
CO ₂ , % volume dry	3.531	3.520	3.472	3.51
Moisture, % by volume	11.09	11.18	10.88	11.05
Flue gas temperature, °F	789.3	789.8	793.0	790.7
Stack flow rate, dscfm	216,705	218,424	226,389	220,506
F_{1/2} Particulate Matter:				
gr/dscf	0.0001	0.0002	0.0004	0.0002
gr/dscf @ 12% CO ₂	0.0003	0.0008	0.0014	0.0008
lb/hr	0.176	0.465	0.768	0.470
lb/day	4.231	11.17	18.43	11.28
B_{1/2} Particulate Matter:				
gr/dscf	0.0001	0.0000	0.0001	0.0000
gr/dscf @ 12% CO ₂	0.0003	0.0000	0.0002	0.0002
lb/hr	0.176	0.000	0.107	0.094
lb/day	4.231	0.000	2.560	2.264
Total Particulate Matter:				
gr/dscf	0.0002	0.0002	0.0005	0.0003
gr/dscf @ 12% CO ₂	0.0006	0.0008	0.0016	0.0010
lb/hr	0.353	0.465	0.875	0.564
lb/day	8.461	11.17	20.99	13.54

**TABLE 4-7
RESULTS SUMMARY
STARTUP AND SHUTDOWN TESTS
HANFORD ENERGY PARK PEAKER
TURBINE UNIT 1
JUNE 6, 2002**

Startup Tests:	Point	Point	Point	Point	Point	Average
3-minute points (15 minutes)	#1	#2	#3	#4	#5	
Time (start at 06:50):	06:53	06:56	06:59	07:02	07:05	--
Unit Data:						
Fuel flow, kscfh	40.57	126.4	328.9	410.5	414.8	264.2
Flue Gas:						
O ₂ , % volume dry	20.62	18.08	16.07	14.56	14.30	16.73
CO ₂ , % volume dry	0.256	1.801	2.989	3.843	3.983	2.574
Flow rate, kdscfm	1,127	140.3	218.2	204.2	198.0	377.5
CO Emissions:						
ppm volume dry	0.903	3.827	0.873	0.771	0.772	1.429
lb/hr (based on 1 hour)	2.227	2.174	0.839	0.687	0.666	1.319
lb/hr (actual per event)	0.111	0.109	0.042	0.034	0.033	0.330
NO_x Emissions:						
ppm volume dry	0.545	15.26	20.86	14.10	3.783	10.91
lb/hr as NO ₂ (based on 1 hour)	1.267	14.81	31.63	20.82	5.365	14.78
lb/hr as NO ₂ (actual per event)	0.063	0.741	1.582	1.041	0.268	3.695
Shutdown Tests:	Point	Point	Point	Point	Point	Average
3-minute points (12 minutes)	#1	#2	#3	#4	#5	
Time (start at 16:00):	16:03	16:06	16:09	16:12	--	--
Unit Data:						
Fuel flow, kscfh	294.4	112.7	26.97	19.17	--	113.3
Flue Gas:						
O ₂ , % volume dry	15.37	17.13	18.47	18.68	--	17.41
CO ₂ , % volume dry	3.348	2.407	1.637	1.534	--	2.231
Flow rate, kdscfm	166.6	94.13	36.06	27.26	--	81.02
CO Emissions:						
ppm volume dry	0.954	0.388	1.642	2.872	--	1.464
lb/hr (based on 1 hour)	0.724	0.159	0.276	0.341	--	0.375
lb/hr (actual per event)	0.036	0.008	0.014	0.017	--	0.075
NO_x Emissions:						
ppm volume dry	50.74	30.97	2.878	2.527	--	21.78
lb/hr as NO ₂ (based on 1 hour)	54.41	20.93	0.689	0.457	--	19.12
lb/hr as NO ₂ (actual per event)	2.720	1.046	0.034	0.023	--	3.824

**TABLE 4-8
RESULTS SUMMARY
STARTUP AND SHUTDOWN TESTS
HANFORD ENERGY PARK PEAKER
TURBINE UNIT 2
JUNE 5, 2002**

Startup Tests:	Point	Point	Point	Point	Point	Average
3-minute points (15 minutes)	#1	#2	#3	#4	#5	
Time (start at 06:46):	06:49	06:52	06:55	06:58	07:01	--
Unit Data:						
Fuel flow, kscfh	70.47	166.4	289.1	385.0	407.9	263.8
Flue Gas:						
O ₂ , % volume dry	19.87	17.88	16.25	15.02	14.46	16.70
CO ₂ , % volume dry	0.722	1.927	2.849	3.561	3.876	2.587
Flow rate, kdscfm	609.5	172.3	196.2	207.4	200.5	277.2
CO Emissions:						
ppm volume dry	2.729	2.087	3.098	1.112	0.792	1.964
lb/hr (based on 1 hour)	2.962	1.579	2.795	1.006	0.703	1.809
lb/hr (actual per event)	0.148	0.079	0.140	0.050	0.035	0.452
NO_x Emissions:						
ppm volume dry	2.830	5.765	2.170	13.62	5.544	5.985
lb/hr as NO ₂ (based on 1 hour)	3.007	6.214	3.090	20.77	8.084	8.233
lb/hr as NO ₂ (actual per event)	0.150	0.311	0.154	1.038	0.404	2.058
Shutdown Tests:	Point	Point	Point	Point	Point	Average
3-minute points (12 minutes)	#1	#2	#3	#4	#5	
Time (start at 16:47):	16:50	16:53	16:56	16:59	--	--
Unit Data:						
Fuel flow, kscfh	318.4	132.7	36.60	26.70	--	128.6
Flue Gas:						
O ₂ , % volume dry	15.16	16.63	18.11	18.49	--	17.10
CO ₂ , % volume dry	3.431	2.553	1.694	1.482	--	2.290
Flow rate, kdscfm	175.1	98.22	42.12	35.04	--	87.63
CO Emissions:						
ppm volume dry	0.267	0.027	1.121	3.012	--	1.107
lb/hr (based on 1 hour)	0.225	0.012	0.223	0.467	--	0.232
lb/hr (actual per event)	0.011	0.001	0.011	0.023	--	0.046
NO_x Emissions:						
ppm volume dry	46.34	43.34	2.927	1.777	--	23.60
lb/hr as NO ₂ (based on 1 hour)	51.27	31.45	0.861	0.436	--	21.01
lb/hr as NO ₂ (actual per event)	2.564	1.573	0.043	0.022	--	4.201



APPENDIX C

SJVAPCD Engineering Analysis

APPLICATION REVIEW

Processing Engineer: Errol Villegas

Date: November 25, 2002

Company Name: GWF Energy LLC - Henrietta Peaker Project
Mailing Address: 4300 Railroad Avenue
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Contacts: Doug Wheeler, Vice President
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Project #: 1020868
Application #: C-3929-1-2 and -2-2
Date Complete: July 25, 2002

I. PROPOSAL:

GWF Energy, LLC – Henrietta Peaker Power Plant hereinafter referred to as “Henrietta Peaker Project” proposes to modify the previous approval of their 93.8 MW peaking power plant which included two 46.9 MW General Electric LM6000 natural gas-fired combustion turbine generators (CTGs) with a water spray premixed combustion system, a Selective Catalytic Reduction (SCR) system and an oxidation catalyst. (Appendix A)

The facility is requesting an Authority to Construct (ATC) to incorporate the following revisions to existing permit conditions #31 and #32, respectively:

- During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (C-3929-1 and C-3929-2) shall not exceed any of the following limits: NOx (as NO₂) - 15.4 lb, CO - 15.4 lb, or VOC - 1.4 lb ~~in any one hour~~ **per event**. [California Environmental Quality Act]
- Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr and ppmvd emission limits in condition #19. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup and shutdown of gas turbine engine shall not exceed a time period of one hour each per occurrence. ~~Startup and shutdown events shall not exceed 300 occurrences per calendar year.~~ [District Rule 2201]

The District has evaluated the permit conditions submitted by GWF Energy, and the District concurs with the proposed modifications. The revision to the first condition simply clarifies that a startup or shutdown event may be less than one hour in duration. The proposed revision to the second condition is also acceptable to the District,

because the original purpose of limiting the amount of occurrences for the startup and shutdown events was to validate the amount of offsets provided to the District by the facility. Since there is an annual emissions limitation already on the permit, limitation for the amount of annual startup and shutdown occurrences for the emissions units is not necessary. Therefore, the District will incorporate the proposed conditions to the ATCs.

In addition, the facility has proposed to reduce PM₁₀ emission limits based on source test results. The proposed PM₁₀ emissions are as follows: hourly – 2.0 lb/hr; daily – 48.0 lb/day; and yearly – 16,000 lb/year (based on 8,000 hours of operation). Therefore, according to condition #16 on ATCs C-3929-1-1 and -2-1, the District will re-evaluate the emission limits imposed on the units and revise the offset calculations to reflect the revised limits.

With this project, GWF Energy is only proposing to revise/clarify certain permit conditions and lower PM₁₀ emissions based upon source test results. This project is not a modification pursuant to Rule 2201, Section 3.25 since there will not be a change in hours of operation, production rate, method of operation, structural change, or addition to the emissions unit, which would necessitate a change in permit conditions.

The Henrietta Peaker Project is also subject to approval by the California Energy Commission (CEC). GWF Energy LLC will submit these proposed modifications to the California Energy Commission (CEC) shortly after the issuance of the proposed ATCs.

II. APPLICABLE RULES:

- Rule 1080** Stack Monitoring (12/17/92)
- Rule 1081** Source Sampling (12/16/93)
- Rule 2201** New and Modified Stationary Source Review (4/25/02)
- Rule 2520** Federally Mandated Operating Permits (6/15/95)
- Rule 2540** Acid Rain Program (11/13/97)
- Rule 4001** NSPS Subpart GG - Standards of Performance for Stationary Gas Turbines (04/14/99)
- Rule 4101** Visible Emissions (12/17/92)
- Rule 4102** Nuisance (12/17/92)
- Rule 4201** Particulate Matter Concentration (12/17/92)
- Rule 4202** Particulate Matter Emission Rate (12/17/92)
- Rule 4703** Stationary Gas Turbines (04/25/02)
- Rule 4801** Sulfur Compounds (12/17/92)
- California Health & Safety Code (CH&S)**, Sections 41700 (Health Risk Analysis), 42301.6 (School Notice), and 44300 (Air Toxic “Hot Spots”)

III. PROJECT LOCATION:

NW ¼ Section 34, Township 19 South, Range 19 East – Mount Diablo Base Meridian on Assessor's Parcel Number 027-190-065.

The site is located on the eastern side of 25th Avenue, approximately one mile south of State Route (SR) 198, in Kings County. The proposed location is not within 1,000' of a K-12 school.

IV. PROCESS DESCRIPTION:

The proposed facility will consist of two natural gas-fired General Electric (GE) Model LM6000 PC Sprint combustion turbine generators (CTGs), each equipped with a water spray premixed combustion system, a selective catalytic reduction (SCR) system with ammonia injection, an oxidation catalyst, and associated support equipment. Each CTG system will consist of a stationary, heavy duty, industrial CTG, designed to use natural gas to produce electricity at a nominal output of 46.9 MW for each CTG. The total facility nominal output will be 93.8 MW. No cooling towers or heat recovery steam generators (HRSGs) will be installed. The applicant has not proposed any black start equipment.

The CTGs will operate during periods of peak electricity demand. Peak electricity demand periods typically occur during daylight hours in the second and third quarters of the calendar year, but can also occur during other periods when unusual temperature extremes cause unseasonably high electricity demand or when other electricity resource constraints reduce the amount of power otherwise available to the grid. This facility could operate during any of these periods.

The facility has proposed an operating scenario of 8,000 hours of full load operation per year with approximately 300 startup and shutdown events and as discussed above, this operating schedule will not change.

The CTGs will utilize water injection, SCR with ammonia injection, and an oxidation catalyst to achieve the following emission rates:

NO_x: 3.6 ppmvd @ 15% O₂
VOC: 2.0 ppmvd @ 15% O₂
CO: 6.0 ppmvd @ 15% O₂
SO_x: 0.00071 lb/MMBtu
PM₁₀: 2.0 lb/hr

Continuous emissions monitoring systems (CEMs) will sample, analyze, and record NO_x, CO, and O₂ concentrations in the exhaust gas for each CTG.

V. EQUIPMENT LISTING:

C-3929-1-1: 46.9 MW nominally rated Simple-Cycle Peak-Demand Power Generating System #1 consisting of a General Electric Model LM6000 natural gas-fired Combustion turbine Generator with water spray premixed combustion systems, served by a selective catalytic reduction (SCR) system with ammonia injection and an oxidation catalyst.

C-3929-2-1: 46.9 MW nominally rated Simple-Cycle Peak-Demand Power Generating System #2 consisting of a General Electric Model LM6000 natural gas-fired Combustion turbine Generator with water spray premixed combustion systems, served by a selective catalytic reduction (SCR) system with ammonia injection and an oxidation catalyst.

VI. EMISSION CONTROL TECHNOLOGY EVALUATION:

As proposed in their approved proposal, each CTG will be equipped with water spray premixed combustion systems and will exhaust into a Selective Catalytic Reduction [SCR] system with ammonia injection, and a CO & VOC catalyst. The use of water injection and a SCR system with ammonia injection can achieve a NO_x emission rate of 3.6 ppmvd @ 15% O₂. CO emissions of 6 ppmvd @ 15% O₂ and VOC emissions of 2 ppmvd @ 15% O₂ have been demonstrated with the use of an oxidation catalyst ⁽¹⁾.

Emissions from natural gas-fired turbines include NO_x, CO, VOC, PM₁₀, and SO_x.

NO_x is the major pollutant of concern when combusting natural gas. Virtually all gas turbine NO_x emissions originate as NO. This NO is further oxidized in the exhaust system or later in the atmosphere to form the more stable NO₂ molecule. There are two mechanisms by which NO_x is formed in turbine combustors: 1) the oxidation of atmospheric nitrogen found in the combustion air (thermal NO_x and prompt NO_x), and 2) the conversion of nitrogen chemically bound in the fuel (fuel NO_x).

Thermal NO_x is formed by a series of chemical reactions in which oxygen and nitrogen present in the combustion air dissociate and subsequently react to form oxides of nitrogen. Prompt NO_x, a form of thermal NO_x, is formed in the proximity of the flame front as intermediate combustion products such as HCN, H, and NH are oxidized to form NO_x.

Fuel NO_x is formed when fuels containing nitrogen are burned. Molecular nitrogen, present as N₂ in some natural gas, does not contribute significantly to fuel NO_x formation. With excess air, the degree of fuel NO_x formation is primarily a function of the nitrogen content in the fuel. When compared to thermal NO_x, fuel NO_x is not currently a major contributor to overall NO_x emissions from stationary gas turbines firing natural gas.

The level of NO_x formation in a gas turbine, and hence the NO_x emissions, is unique (by design factors) to each gas turbine model and operating mode. The primary factors that determine the amount of NO_x generated are the combustor design, the types of fuel being burned, ambient conditions, operating cycles, and the power output of the turbine.

Selective Catalytic Reduction systems reduce NO_x emissions by injecting ammonia (NH₃) into the exhaust gas stream upstream of a catalyst. Nitrogen oxides, NH₃, and O₂ react on the surface of the catalyst to form molecular nitrogen (N₂) and H₂O. SCR is capable of over 90 percent NO_x reduction. Titanium oxide is the SCR catalyst material most commonly used, though vanadium pentoxide, noble metals, or zeolites are also used. The

¹ Based on information supplied by the CTG manufacturer and information contained in the California Air Resources Board's September 1999 Guidance for Power Plant Siting and Best Available Control Technology document.

ideal operating temperature for a conventional SCR catalyst is 600 to 750 °F. Exhaust gas temperatures greater than the upper limit (750 °F) will cause NO_x and NH₃ to pass through the catalyst unreacted. Ammonia slip will be limited to 10 ppmvd @ 15% O₂.

An oxidation catalyst utilizes a precious metal catalyst bed to convert carbon monoxide (CO) to carbon dioxide (CO₂). This type of control device is also somewhat effective for controlling VOC emissions by a similar chemical reaction to that of carbon monoxide.

VII. CALCULATIONS:

As this project is not a modification under Rule 2201 (per Section 3.25), NSR calculations are not necessary. The project will not modify any emissions calculations for NO_x, CO, VOC, or SO_x; therefore, see the FDOC for project #1011099 for detailed calculations for these pollutants.

The following calculations are being performed solely to document the emissions calculations for PM₁₀ emissions based upon the applicant's proposal to use source test results.

A. Assumptions

- The applicant proposes a PM₁₀ mass emission rate of 2.0 lb/hr for each CTG based on the most recent source test results.
- Maximum daily emissions for PM₁₀ are estimated assuming 100% capacity, an ambient temperature of 15 °F, one 1-hour startup/shutdown event, followed by 23 hours of full load operation.
- Maximum annual emissions for PM₁₀ are estimated assuming 100% capacity at 8,000 hours of full load operation

B. Emission Factors

The maximum air contaminant mass emission rates (lb/hr), concentrations (ppmvd @ 15% O₂), and startup and shutdown emissions rates for the CTGs are summarized below:

Maximum Emission Rates and Concentrations (@ 100% Load & 15 °F)						
	NO _x	CO	VOC	PM ₁₀	SO _x	NH ₃
Mass Emission Rates (per turbine, lb/hr)	6.21	6.25	1.17	2.0	0.33	6.25
ppmvd @ 15% O ₂ limits	3.6	6.0	2.0	--	--	10.0

Startup and Shutdown Emissions (1-hour duration)*					
	NO _x (lb/event)	CO (lb/event)	VOC (lb/event)	PM ₁₀ (lb/event)	SO _x (lb/event)
Mass Emission Rate (per turbine)	7.7	7.7	0.68	2.0**	N/A ⁽²⁾

* Pursuant to the turbine vendor, "A start-up/shutdown event is estimated to be completed in 10 minutes; however, for simplification the emissions for a start-up/shutdown event are calculated as hourly emissions with the 10 minute start-up emissions being added to 50 minutes of baseload operating emissions."

** As daily emissions of 48.0 lb PM₁₀/day were proposed by the applicant, the District will assume emissions during startup and shutdown will be less than or equal to the emissions during baseload operation.

C. Potential to Emit (PE):

1. Pre-Project Potential to Emit (PE1):

Section 3.26 of Rule 2201 defines the potential to emit (PE) as the maximum capacity of an emissions unit to emit a pollutant under its physical and operational design. Based on the calculations performed in the engineering evaluation for project #1011099, the pre-project potential to emit (PE1) for PM₁₀ for this emissions unit is:

Pre-Project Potential to Emit (PE1)				
	Hourly Emissions (lb/hr)	Daily Emissions (lb/day)	Quarterly Emissions (lb/qtr)	Annual Emissions (lb/year)
PM ₁₀	3.3	79.2	6,600	26,400

2. Post Project Potential to Emit (PE2):

As proposed by the applicant, the post-project potential to emit (PE2) for PM₁₀ for this emissions unit is:

Post-Project Potential to Emit (PE2)				
	Hourly Emissions (lb/hr)	Daily Emissions (lb/day)	Quarterly Emissions (lb/qtr)	Annual Emissions (lb/year)
PM ₁₀	2.0	48.0	4,000	16,000

3. Quarterly Delta Potential to Emit (ΔPE):

The quarterly delta potential to emit is used to complete the emission profile for each emissions unit and is calculated as follows and summarized in the table below:

$$\Delta PE \text{ (lb/qtr)} = PE2 \text{ (lb/qtr)} - PE1 \text{ (lb/qtr)}$$

² SO_x emissions during startups and shutdowns are always lower than maximum hourly emissions as SO_x emissions are proportional to fuel flow.

Quarterly Delta Potential to Emit (ΔPE)				
	1 st Quarter (lb/qtr)	2 nd Quarter (lb/qtr)	3 rd Quarter (lb/qtr)	4 th Quarter (lb/qtr)
PM ₁₀	-2,600	-2,600	-2,600	-2,600

4. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. The pre-project Stationary Source Potential to Emit is as follows:

Pre-project Stationary Source Potential to Emit [SSPE1] (lb/year)						
Permit Unit	NO _x	CO	VOC	PM ₁₀	SO _x	NH ₃
C-3929-1-1	49,510	21,830	2,844	26,400	2,640	50,000
C-3929-2-1	49,510	21,830	2,844	26,400	2,640	50,000
C-3929-3-0	891	198	25	23	30	0
Pre-project SSPE (SSPE1)	99,911	43,858	5,713	52,823	5,310	100,000

5. Post-Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post-project Stationary Source Potential to Emit (SSPE2) is the post-project annual PE of all units at the Stationary Source.

Post-project Stationary Source Potential to Emit [SSPE2] (lb/year)						
Permit Unit	NO _x	CO	VOC	PM ₁₀	SO _x	NH ₃
C-3929-1-2	49,510	21,830	2,844	16,000	2,640	50,000
C-3929-2-2	49,510	21,830	2,844	16,000	2,640	50,000
C-3929-3-0	891	198	25	23	30	0
Post-project SSPE (SSPE2)	99,911	43,858	5,713	32,023	5,310	100,000

D. Offsets:

1. Offset Applicability:

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post-project Stationary Source Potential to

Emit (SSPE2) equals to or exceeds emissions of 20,000 lbs/year for NO_x and VOC, 200,000 lbs/year for CO, 54,750 lbs/year for SO_x and 29,200 lbs/year for PM₁₀.

Offset Determination					
	NO _x	CO	VOC	PM ₁₀	SO _x
Post-project SSPE (SSPE2)	99,911	43,858	5,713	32,023	5,310
Offset Threshold	20,000	200,000	20,000	29,200	54,750
Major Source?	Yes	No	No	Yes	No

As seen in the table above, the facility's SSPE2 is greater than the offset thresholds for NO_x, and PM₁₀ emissions, but as discussed earlier, NO_x emissions will not change as a result of this project; therefore, only revised offset calculations for PM₁₀ will be presented below.

2. Quantity of Offsets Required:

Per Sections 4.7.2 and 4.7.3, the quantity of offsets in pounds per year for PM₁₀ is calculated as follows for sources with an SSPE1 less than the offset threshold levels before implementing the project being evaluated.

$$\text{Offset} = [\text{SSPE2} - \text{offset threshold}] * \text{Offset Ratio}$$

Where, Offset Ratio = Distance or interpollutant ratio of Sections 4.8 and 4.13.3

Per Section 4.6.2, emergency equipment that is used exclusively as emergency standby equipment for electrical power generation or any other emergency equipment as approved by the APCO that does not operate more than 200 hours per year of non-emergency purposes and is not used pursuant to voluntary arrangements with a power supplier to curtail power, is exempt from providing emission offsets. Therefore, permit unit C-3929-3-0 will be exempt from providing offsets and the emissions associated with this permit unit contributing to the SSPE2 should be removed prior to calculating actual offset amounts.

$$\text{Offset} = [\text{SSPE2} - (\text{emergency equipment}) - \text{offset threshold}] * \text{Offset Ratio}$$

$$\begin{aligned} \text{PM}_{10} \text{ SSPE2} &= 32,023 \text{ lb/year} \\ \text{C-3929-3-0 (PM}_{10}\text{)} &= 23 \text{ lb/year} \\ \text{PM}_{10} \text{ offset threshold} &= 29,200 \text{ lb/year} \end{aligned}$$

$$\begin{aligned} \text{Offsets} &= [32,023 - (23) - 29,200] \\ &= 2,800 \text{ lb/year} \end{aligned}$$

Since the maximum annual emissions are equivalent to operating at normal baseload conditions, calculating the appropriate quarterly PM₁₀ emissions to be offset is as follows: (= Annual offsets ÷ 4 qtrs)

PE_{1st Qtr} = 700 lbs of PM₁₀
 PE_{2nd Qtr} = 700 lbs of PM₁₀
 PE_{3rd Qtr} = 700 lbs of PM₁₀
 PE_{4th Qtr} = 700 lbs of PM₁₀

Assuming an offset distance ratio of 1.5:1, the amount of PM₁₀ ERC credits that need to be surrendered to the District is:

<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
1,050	1,050	1,050	1,050

As proposed by the applicant, in order to satisfy District offset requirements the applicant has proposed providing SO_x reductions in place of PM₁₀ reductions. District Rule 2201 Section 4.13.3 allows such interpollutant substitutions provided the applicant shows that the substitution will not cause or contribute to the violation of an ambient air quality standard and that the appropriate interpollutant offset ratio is utilized. GWF Energy LLC, has proposed to provide SO_x credits to offset PM₁₀ credits at a distance offset ratio of 1.5:1 and an interpollutant offset ratio of 1.4:1 (totaling a 1.9:1 ratio). As evaluated in project #1011099, the District concluded that an interpollutant offset ratio of 1.4:1 was appropriate.

To offset the remaining PM₁₀ emissions:

	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
Remaining emissions: (at a 1.5:1 ratio)	1,050	1,050	1,050	1,050
Remaining emissions: (with no offset ratio)	700	700	700	700
@ a 1.9:1 ratio	1,330	1,330	1,330	1,330

The facility has proposed to use the SO_x ERC certificate C-392-5 to offset the remaining increases in PM₁₀ emissions. C-392-5 has available quarterly SO_x credits as follows:

	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
ERC #C-392-5	2,500	2,500	2,500	2,500

With ERC Certificate C-392-5, the facility should have sufficient emission reduction credits to fully offset the PM₁₀ emissions associated with this project.

VIII. COMPLIANCE:

Rule 1080 Stack Monitoring

This Rule grants the APCO the authority to request the installation and use of continuous emissions monitors (CEMs), and specifies performance standards for the equipment and administrative requirements for recordkeeping, reporting, and notification.

The turbines will be equipped with operational CEMs for NO_x, CO, and O₂. Provisions will be included in the operating permit which are consistent with the requirements of this Rule. Compliance with this Rule is anticipated.

Rule 1081 Source Sampling

This Rule requires adequate and safe facilities for use in sampling to determine compliance with emissions limits, and specifies methods and procedures for source testing and sample collection. The requirements of this Rule will be included in the permit. Compliance with this Rule is anticipated.

Rule 2201 New and Modified Stationary Source Review

As discussed above, this project is not a modification, per Section 3.25. Therefore, this Rule does not apply to this project.

Rule 2520 Federally Mandated Operating Permit

This project will be subject to Rule 2520 (Title V) because it will meet the following criteria specified in section 2.0. Section 2.5 states "A source with an acid rain unit for which application for an acid rain permit is required pursuant to Title IV (Acid Rain Program) of the CAA."

Pursuant to Rule 2520 section 5.3.1 GWF Energy LLC must submit a Title V application within 12 months of commencing operations. No action is required at this time.

Rule 2540 Acid Rain Program

The proposed turbines are subject to the acid rain program as phase II units, i.e. they will be installed after 11/15/90 and have a generator nameplate rating greater than 25 MW.

The acid rain program will be implemented through a Title V operating permit. Federal regulations require submission of an acid rain permit application at least 24 months before the later of 1/1/2000 or the date the unit expects to generate electricity. The facility will be required to submit an acid rain program application for the Henrietta Peaker Project. The facility began commercial operation in June of 2002.

The acid rain program requirements for this facility are relatively minimal. Monitoring of the NO_x and SO_x emissions and a relatively small quantity of SO_x allowances (from a national SO_x allowance bank) will be required as well as the use of a NO_x CEM. Compliance is expected.

Rule 4001 New Source Performance Standards, 40 CFR 60 – Subpart GG

40 CFR Part 60 Subpart GG applies to all stationary gas turbines with a heat input greater than 10.7 gigajoules per hour (10.2 MMBtu/hr), that commence construction, modification, or reconstruction after 10/03/77. Therefore, this subpart applies to the turbine installations.

§60.332: Standards for Nitrogen Oxides and §60.333: Standards for Sulfur Dioxide

There is no change in the NO_x or SO_x emission concentrations for the CTGs. Compliance with the NSPS NO_x and SO_x emissions standards were demonstrated in previous approvals.

§60.334 & 60.335: Source Testing and Monitoring Requirements:

There is no change in the source testing and monitoring requirements for the CTGs. Compliance with the NSPS requirements were demonstrated in previous approvals. Compliance is expected.

Rule 4101 Visible Emissions

Per Section 5.0, no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity).

The CTGs lube oil vents will be limited by permit condition to not have visible emissions, except for three minutes in any hour, greater than 5% opacity and the exhaust stack emissions will be limited by permit condition to no greater than 20% opacity except for three minutes in any hour. Therefore compliance is expected.

Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. There are no increases in emissions associated with this project; therefore the proposed operations are not expected to impose any comfort, repose, health, or safety problems to the public provided the equipment is properly maintained and operated. Continued compliance is expected.

California Health & Safety Code 41700 (Health Risk Analysis)

A health risk assessment (HRA) is required for any project that results in an increase in hazardous air emissions. As this project does not increase any emissions, an HRA is not required.

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

There is no increase in the PM emission concentration for the CTGs as a result of this project. Continued compliance with the PM concentration limit of 0.1 gr/dscf as demonstrated in the previous approval is expected.

Rule 4202 Particulate Matter - Emission Rate

Rule 4202 establishes PM emission limits as a function of process weight rate in tons/hr. Gas and liquid fuels are excluded from the definition of process weight. Therefore, Rule 4202 does not apply to the proposed units.

Rule 4703 Stationary Gas Turbines

Rule 4703 is applicable to stationary gas turbines with a rating greater than 0.3 megawatts. The facility operates two 46.9 MW gas turbines, therefore this rule applies.

The proposed modifications do not result in a change in the method of operation of the CTGs, therefore continued compliance is expected as demonstrated in the previous approval.

Rule 4801 Sulfur Compounds

Per Section 3.1, a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO₂ on a dry basis averaged over 15 consecutive minutes:

The proposed modifications do not result in a change in the method of operation of the CTGs, therefore continued compliance is expected as demonstrated in the previous approval.

California Health & Safety Code, Section 42301.6 School Notice

As discussed in Section III of this evaluation, this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

California Health & Safety Code, Section 44300 Air Toxic “Hot Spots”

Section 44300 of the California Health and Safety Code requires submittal of an air toxics “Hot Spot” information and assessment report for sources with criteria pollutant emissions greater than 10 tons per year. However, Section 44344.5 (b) states that a new facility shall not be required to submit such a report if all of the following conditions are met:

1. The facility is subject to a district permit program established pursuant to Section 42300.

2. The district conducts an assessment of the potential emissions or their associated risks, and finds that the emissions will not result in a significant risk.
3. The district issues a permit authorizing construction or operation of the new facility.

A health risk screening assessment was performed for the facility in the previous approval. The acute and chronic hazard indices were less than 1.0 and the cancer risk was less than ten (10) in a million, which are the thresholds of significance for toxic air contaminants. The proposed modifications do not result in a change in the method of operation of the CTGs; therefore, this project still qualifies for exemption per the above exemption criteria.

X. RECOMMENDATION:

Compliance with all applicable prohibitory rules and regulations is expected. Issue Authority to Construct permits C-3929-1-2 and -2-2 subject to conditions shown on the draft Authority to Construct in Appendix B.

XI. BILLING INFORMATION:

As the ratings are not changing with this project, the annual fees will not change and prorated billing will not be required.

Annual Permit Fees			
Permit Number	Fee schedule	Rating	Annual Fee
C-3929-1-2	3020-8B-A	46,900 kW	\$8,757.00
C-3929-2-2	3020-8B-A	46,900 kW	\$8,757.00

APPENDIXES

- Appendix A - Current ATCs C-3929-1-1 & -2-1
- Appendix B - Draft ATCs C-3929-1-2 & -2-2

APPENDIX A

Current Authorities to Construct
C-3929-1-1 & -2-1

CONDITIONS FOR APPLICATION C-3929-1-1

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INSPECTION
ISSUANCE DATE: 05/29/2002
WORKSHEET

LEGAL OWNER OR OPERATOR: GWF ENERGY LLC - HENRIETTA
MAILING ADDRESS: 4300 RAILROAD AVE
 PITTSBURG, CA 94565

LOCATION: 25TH AVE
 LEMOORE, CA

SECTION: NW 34 **TOWNSHIP:** 19 S **RANGE:** 19 E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 46.9 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #1 CONSISTING OF A GENERAL ELECTRIC MODEL LM6000 PC SPRINT NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH WATER SPRAY PREMIXED COMBUSTION SYSTEM, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST. ADD COMMISSIONING CONDITIONS AND ALLOW REDUCTION OF PM10 EMISSION LIMITS AND PM10 OFFSET REQUIREMENTS BASED ON INITIAL SOURCE TEST RESULTS.

CONDITIONS

1. This Authority to Construct (ATC) shall supercede ATC C-3929-1-0. [District Rule 2201]
2. The owner/operator of the Henrietta Peaker Project shall minimize the emissions from the gas turbine to the maximum extent possible during the commissioning period. Conditions #2 through #13 shall apply only during the commissioning period as defined below. Unless otherwise indicated, Conditions #14 through #61 shall apply after the commissioning period has ended. [District Rule 2201]
3. Commissioning activities are defined as, but not limited to, all testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the Henrietta Peaker Project construction contractor to insure safe and reliable steady state operation of the gas turbines and associated electrical delivery systems. [District Rule 2201]
4. Commissioning period shall commence when all mechanical, electrical, and control systems are install and individual system startup has been completed, or when a gas turbine is first fired, whichever occurs first. The commissioning period shall terminate when the plant has completed initial performance testing, completed final plant tuning, and is available for commercial operation. [District Rule 2201]
5. At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the combustors of this unit shall be tuned to minimize emissions. [District Rule 2201]
6. At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the Selective Catalytic Reduction (SCR) system and the oxidation catalyst shall be installed, adjusted, and operated to minimize emissions from this unit. [District Rule 2201]
7. Coincident with the post-commissioning steady-state operation of the SCR system and the oxidation catalyst, NOx and CO emissions from this unit shall comply with the limits specified in condition #33. [District Rule 2201]
8. The permittee shall submit a plan to the District at least one week prior to the first firing of this unit, describing the procedures to be followed during the commissioning period. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not limited to, the tuning of the combustors, the installation and operation of the SCR systems and the oxidation catalyst, the installation, calibration, and testing of the NOx and CO continuous emissions monitors, and any activities requiring the firing of this unit without abatement by the SCR system or oxidation catalyst. [District Rule 2201]
9. Emission rates from both units (C-3929-1 and C-3929-2), during the commissioning period, shall not exceed any of the following limits: NOx (as NO2) - 52 lb/hr or 301.0 lb/day; VOC (as methane) - 4.8 lb/hr or 56.2 lb/day; CO - 176 lb/hr or 303.0 lb/day; PM10 - 158.4 lb/day; or SOx (as SO2) - 15.8 lb/day. [District Rule 2201]

CONDITIONS FOR APPLICATION C-3929-1-1

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- INSPECTION WORKSHEET
10. During the commissioning period, the permittee shall demonstrate compliance with conditions #9 through the use of properly operated and maintained continuous emissions monitors and recorders as specified in conditions #26 and #28. The monitored parameters for this unit shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation). [District Rule 2201]
 11. The continuous monitors specified in conditions #26 and #28 shall be installed, calibrated, and operational prior to the first firing of this unit. After first firing, the detection range of the CEMS shall be adjusted as necessary to accurately measure the resulting range of NOx and CO emission concentrations. [District Rule 2201]
 12. The total number of firing hours of this unit without abatement of emissions by the SCR system and the oxidation catalyst shall not exceed 100 hours during the commissioning period. Such operation of this unit without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and the oxidation catalyst in place. Upon completion of these activities, the permittee shall provide written notice to the District and the unused balance of the 100 firing hours without abatement shall expire. [District Rule 2201]
 13. The total mass emissions of NOx, CO, VOC, PM10, and SOx that are emitted during the commissioning period shall accrue towards the consecutive twelve month emission limits specified in condition #35. [District Rule 2201]
 14. The permittee shall not begin actual onsite construction of the equipment authorized by this Authority to Construct until the lead agency satisfies the requirements of the California Environmental Quality Act (CEQA). [California Environmental Quality Act]
 15. Upon implementation of C-3929-1-0 and C-3929-2-0, emission offsets shall be provided to offset the following increases in: PM10 - Q1: 8,850 lb, Q2: 8,850 lb, Q3: 8,850 lb, and Q4: 8,850 lb and NOx (as NO2) - Q1: 29,055 lb, Q2: 30,210 lb, Q3: 30,210 lb, and Q4: 29,055 lb. Offsets shall be provided at the appropriate distance ratio specified in Rule 2201. SOx offsets provided to offset PM10 increases shall be at an interpollutant ratio of 1.4:1 and applicable distance ratio. [District Rule 2201]
 16. Permittee may lower hourly, daily, and rolling twelve-month PM10 emission limits in Conditions 33, 34, and/or 35, and thereby reduce PM10 offset requirements set forth in condition 15, based on actual PM10 emissions demonstrated during initial source tests. Revised emission limits shall be submitted to the District within 60 days after the last unit completes the initial source test. The District will reflect revised limits in the Permit to Operate for the subject equipment. Any emission reduction credit (ERC) certificates, or portions thereof, that were initially tendered to the District but are not needed to meet reduced PM10 offset requirements will be returned to the permittee at full value. The permittee shall indicate which ERC certificates are to be retired. [District Rule]
 17. The permittee shall notify the District of the date of initiation of construction no later than 30 days after such date, the date of anticipated startup not more than 60 days nor less than 30 days prior to such date, and the date of actual startup within 15 days after such date. [District Rule 4001]
 18. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. Permittee shall submit SCR and oxidation catalyst design details to the District at least 30 days prior to commencement of construction. [District Rule 2201]
 19. Permittee shall submit continuous emission monitor design, installation, and operational details to the District at least 30 days prior to commencement of construction. [District Rule 2201]
 20. The permittee shall submit to the District information correlating the NOx control system operating parameters to the associated measured NOx output. The information must be sufficient to allow the District to determine compliance with the NOx emission limits of this permit during times that the CEMS is not functioning properly. [District Rule 4703]
 21. {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]
 22. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
 23. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
 24. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

CONDITIONS FOR APPLICATION C-3929-1-1

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- INSPECTION WORKSHEET
25. Combustion turbine generator (CTG) and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rule 2201]
 26. The CTG shall be equipped with a continuous monitoring system to measure and record hours of operation, mass ratio of water-to-fuel injected, and fuel consumption. [District Rules 2201, 4001, and 4703]
 27. Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201]
 28. The CTG shall be equipped with a continuous emission monitor (CEM) for NO_x (before and after SCR system), CO, and O₂. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and 40 CFR part 75, and District-approved protocol, and shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided the CEM(s) pass the relative accuracy requirement for startups and shutdowns specified herein. If relative accuracy of CEM(s) cannot be demonstrated during startup conditions, CEM results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits contained in this document. [District Rules 2201, 4001, and 4703]
 29. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
 30. The CTG shall be fired exclusively on natural gas with a sulfur content of no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]
 31. During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (C-3929-1 and C-3929-2) shall not exceed the following: NO_x (as NO₂) - 15.4 lb, CO - 15.4 lb, or VOC - 1.4 lb in any one hour. [California Environmental Quality Act]
 32. Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr and ppmvd emission limits in condition #19. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup and shutdown of gas turbine engine shall not exceed a time period of one hour each per occurrence. Startup and shutdown events shall not exceed 300 occurrences per calendar year. [District Rule 2201]
 33. Emission rates from this unit, except during startup and shutdown events, shall not exceed any of the following: NO_x (as NO₂) - 6.21 lb/hr and 3.6 ppmvd @ 15% O₂; VOC (as methane) - 1.17 lb/hr and 2.0 ppmvd @ 15% O₂; CO - 6.25 lb/hr and 6.0 ppmvd @ 15% O₂; PM₁₀ - 3.3 lb/hr; or SO_x (as SO₂) - 0.33 lb/hr. All emission concentration limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]
 34. Maximum daily emissions from this unit shall not exceed any of the following limits: NO_x (as NO₂) - 150.5 lb/day; VOC - 28.1 lb/day; CO - 151.5 lb/day; PM₁₀ - 79.2 lb/day; or SO_x (as SO₂) - 7.9 lb/day. [District Rule 2201]
 35. Maximum annual emissions from this unit shall not exceed any of the following limits: NO_x (as NO₂) - 46,510 lb/year; VOC - 2,844 lb/year; CO - 21,830 lb/year; PM₁₀ - 26,400 lb/year; or SO_x (as SO₂) - 2,640 lb/year. [District Rule 2201]
 36. The ammonia (NH₃) emissions shall not exceed 10 ppmvd @ 15% O₂ over a 24 hour rolling average. [District Rule 2201]
 37. Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O₂ = ((a - (b x c/1,000,000)) x (1,000,000 / b) x d, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NO_x concentration ppmvd @ 15% O₂ across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH₃ CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 4102]
 38. Source testing to measure the NO_x, CO, and VOC emission limits (lb/hr and ppmvd @ 15% O₂) shall be conducted within 60 days of initial operation of the CTG and at least once every twelve months thereafter. [District Rule 1081]

CONDITIONS FOR APPLICATION C-3929-1-1

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- INSPECTION WORKSHEET**
39. Source testing to measure the PM10 emission limit (lb/hr), the natural gas sulfur content limit, and the ammonia emission limit shall be conducted within 60 days of initial operation and at least once every twelve months thereafter. [District Rule 1081]
 40. Source testing of startup NO_x, CO, VOC, and PM10 mass emission rates shall be conducted for one of the gas turbine engines (C-3929-1 or C-3929-2) upon initial operation and at least once every seven years thereafter. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081]
 41. Source testing to determine the percent efficiency of the turbine shall be within 60 days of initial operation and at least once every twelve months thereafter. [District Rule 4703]
 42. Compliance demonstration (source testing) shall be District witnessed, or authorized and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
 43. The following test methods shall be used PM10: EPA Method 5 (front half and back half), NO_x: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O₂: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. Alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]
 44. Source testing to determine the percent efficiency of the turbine shall be conducted utilizing the procedures in District Rule 4703 (Stationary Gas Turbines). [District Rule 4703]
 45. The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 2201 and 4703]
 46. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NO_x mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201 and 4703]
 47. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
 48. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
 49. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
 50. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100]
 51. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100]

CONDITIONS FOR APPLICATION C-3929-1-1

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- INSPECTION WORKSHEET**
52. The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1980]
 53. All records required to be maintained by this permit shall be maintained for a period of at least two years and shall be made readily available for District inspection upon request. [District Rule 2201]
 54. Permittee shall submit an application to comply with Rule 2520 - Federally Mandated Operating Permits within twelve months of commencing operation. [District Rule 2520]
 55. Permittee shall submit an application to comply with Rule 2540 - Acid Rain Program. [District Rule 2540]
 56. Disturbances of soil related to any construction, demolition, excavation, extraction, and other earthmoving activities shall comply with the requirements for fugitive dust control in SJVUAPCD District Rule 8021 (11/15/01) unless specifically exempted under section 4.0 of Rule 8021. [District Rule 8021]
 57. Outdoor handling, storage, and transport of any bulk material shall comply with the requirements of SJVUAPCD District Rule 8031 (11/15/01), unless specifically exempted under section 4.0 of Rule 8031. [District Rule 8031]
 58. All sites that are subject to SJVUAPCD District Rule 8021, SJVUAPCD District Rule 8031, and SJVUAPCD District Rule 8071 shall comply with the requirements of SJVUAPCD District Rule 8041 (11/15/01), unless specifically exempted under section 4.0 of Rule 8041. [District Rule 8041]
 59. Any open area having 3.0 acres or more of disturbed surface area, that has remained undeveloped, unoccupied, unused or vacant for more than seven days shall comply with the requirements of SJVUAPCD District Rule 8051 (11/15/01), unless specifically exempted under section 4.0 of Rule 8051. [District Rule 8051]
 60. Any new or existing public or private paved or unpaved road, road construction project, or road modification project shall implement the control measures and design criteria of, and comply with the requirements of SJVUAPCD District Rule 8061 (11/15/01) unless specifically exempted under section 4.0 of Rule 8061. [District Rule 8061]
 61. Any unpaved vehicle/equipment traffic area of 1.0 acre or larger shall comply with the requirements of SJVUAPCD District Rule 8071 (11/15/01), unless specifically exempted under section 4.0 of Rule 8071. [District Rule 8071]

CONDITIONS FOR APPLICATION C-3929-2-1

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INSPECTION
ISSUANCE DATE: 05/29/2002
WORKSHEET

LEGAL OWNER OR OPERATOR: GWF ENERGY LLC - HENRIETTA
MAILING ADDRESS: 4300 RAILROAD AVE
 PITTSBURG, CA 94565

LOCATION: 25TH AVE
 LEMOORE, CA

SECTION: SW 34 **TOWNSHIP:** 19 S **RANGE:** 19 E

EQUIPMENT DESCRIPTION:

MODIFICATION OF MODIFICATION OF 46.9 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #2 CONSISTING OF A GENERAL ELECTRIC MODEL LM6000 PC SPRINT NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH WATER SPRAY PREMIXED COMBUSTION SYSTEM, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST: ADD COMMISSIONING CONDITIONS AND ALLOW REDUCTION OF PM10 EMISSION LIMITS AND PM10 OFFSET REQUIREMENTS BASED ON INITIAL SOURCE TEST RESULTS.

CONDITIONS

1. This Authority to Construct (ATC) shall supercede ATC C-3929-2-0. [District Rule 2201]
2. The owner/operator of the Henrietta Peaker Project shall minimize the emissions from the gas turbine to the maximum extent possible during the commissioning period. Conditions #2 through #13 shall apply only during the commissioning period as defined below. Unless otherwise indicated, Conditions #14 through #61 shall apply after the commissioning period has ended. [District Rule 2201]
3. Commissioning activities are defined as, but not limited to, all testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the Henrietta Peaker Project construction contractor to insure safe and reliable steady state operation of the gas turbines and associated electrical delivery systems. [District Rule 2201]
4. Commissioning period shall commence when all mechanical, electrical, and control systems are install and individual system startup has been completed, or when a gas turbine is first fired, whichever occurs first. The commissioning period shall terminate when the plant has completed initial performance testing, completed final plant tuning, and is available for commercial operation. [District Rule 2201]
5. At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the combustors of this unit shall be tuned to minimize emissions. [District Rule 2201]
6. At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, the Selective Catalytic Reduction (SCR) system and the oxidation catalyst shall be installed, adjusted, and operated to minimize emissions from this unit. [District Rule 2201]
7. Coincident with the post-commissioning steady-state operation of the SCR system and the oxidation catalyst, NOx and CO emissions from this unit shall comply with the limits specified in condition #33. [District Rule 2201]
8. The permittee shall submit a plan to the District at least one week prior to the first firing of this unit, describing the procedures to be followed during the commissioning period. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not limited to, the tuning of the combustors, the installation and operation of the SCR systems and the oxidation catalyst, the installation, calibration, and testing of the NOx and CO continuous emissions monitors, and any activities requiring the firing of this unit without abatement by the SCR system or oxidation catalyst. [District Rule 2201]
9. Emission rates from both units (C-3929-1 and C-3929-2), during the commissioning period, shall not exceed any of the following limits: NOx (as NO2) - 52 lb/hr or 301.0 lb/day; VOC (as methane) - 4.8 lb/hr or 56.2 lb/day; CO - 176 lb/hr or 303.0 lb/day; PM10 - 158.4 lb/day; or SOx (as SO2) - 15.8 lb/day. [District Rule 2201]

CONDITIONS FOR APPLICATION C-3929-2-1

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INSPECTION
WORKSHEET

10. During the commissioning period, the permittee shall demonstrate compliance with conditions #9 through the use of properly operated and maintained continuous emissions monitors and recorders as specified in conditions #26 and #28. The monitored parameters for this unit shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation). [District Rule 2201]
11. The continuous monitors specified in conditions #26 and #28 shall be installed, calibrated, and operational prior to the first firing of this unit. After first firing, the detection range of the CEMS shall be adjusted as necessary to accurately measure the resulting range of NOx and CO emission concentrations. [District Rule 2201]
12. The total number of firing hours of this unit without abatement of emissions by the SCR system and the oxidation catalyst shall not exceed 100 hours during the commissioning period. Such operation of this unit without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system and the oxidation catalyst in place. Upon completion of these activities, the permittee shall provide written notice to the District and the unused balance of the 100 firing hours without abatement shall expire. [District Rule 2201]
13. The total mass emissions of NOx, CO, VOC, PM10, and SOx that are emitted during the commissioning period shall accrue towards the consecutive twelve month emission limits specified in condition #95. [District Rule 2201]
14. The permittee shall not begin actual onsite construction of the equipment authorized by this Authority to Construct until the lead agency satisfies the requirements of the California Environmental Quality Act (CEQA). [California Environmental Quality Act]
15. Upon implementation of C-3929-1-0 and C-3929-2-0, emission offsets shall be provided to offset the following increases in: PM10 - Q1: 8,850 lb, Q2: 8,850 lb, Q3: 8,850 lb, and Q4: 8,850 lb and NOx (as NO2) - Q1: 29,055 lb, Q2: 30,210 lb, Q3: 30,210 lb, and Q4: 29,055 lb. Offsets shall be provided at the appropriate distance ratio specified in Rule 2201. SOx offsets provided to offset PM10 increases shall be at an interpollutant ratio of 1.4:1 and applicable distance ratio. [District Rule 2201]
16. Permittee may lower hourly, daily, and rolling twelve-month PM10 emission limits in Conditions 33, 34, and/or 35, and thereby reduce PM10 offset requirements set forth in condition 15, based on actual PM10 emissions demonstrated during initial source tests. Revised emission limits shall be submitted to the District within 60 days after the last unit completes the initial source test. The District will reflect revised limits in the Permit to Operate for the subject equipment. Any emission reduction credit (ERC) certificates, or portions thereof, that were initially tendered to the District but are not needed to meet reduced PM10 offset requirements will be returned to the permittee at full value. The permittee shall indicate which ERC certificates are to be retired. [District Rule]
17. The permittee shall notify the District of the date of initiation of construction no later than 30 days after such date, the date of anticipated startup not more than 60 days nor less than 30 days prior to such date, and the date of actual startup within 15 days after such date. [District Rule 4001]
18. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. Permittee shall submit SCR and oxidation catalyst design details to the District at least 30 days prior to commencement of construction. [District Rule 2201]
19. Permittee shall submit continuous emission monitor design, installation, and operational details to the District at least 30 days prior to commencement of construction. [District Rule 2201]
20. The permittee shall submit to the District information correlating the NOx control system operating parameters to the associated measured NOx output. The information must be sufficient to allow the District to determine compliance with the NOx emission limits of this permit during times that the CEMS is not functioning properly. [District Rule 4703]
21. {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]
22. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
23. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
24. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

CONDITIONS FOR APPLICATION C-3929-2-1

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25. Combustion turbine generator (CTG) and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rule 2201]
 26. The CTG shall be equipped with a continuous monitoring system to measure and record hours of operation, mass ratio of water-to-fuel injected, and fuel consumption. [District Rules 2201, 4001, and 4703]
 27. Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201]
 28. The CTG shall be equipped with a continuous emission monitor (CEM) for NO_x (before and after SCR system), CO, and O₂. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and 40 CFR part 75, and District-approved protocol, and shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided the CEM(s) pass the relative accuracy requirement for startups and shutdowns specified herein. If relative accuracy of CEM(s) cannot be demonstrated during startup conditions, CEM results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits contained in this document. [District Rules 2201, 4001, and 4703]
 29. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
 30. The CTG shall be fired exclusively on natural gas with a sulfur content of no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]
 31. During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (C-3929-1 and C-3929-2) shall not exceed the following: NO_x (as NO₂) - 15.4 lb, CO - 15.4 lb, or VOC - 1.4 lb in any one hour. [California Environmental Quality Act]
 32. Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr and ppmvd emission limits in condition #19. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup and shutdown of gas turbine engine shall not exceed a time period of one hour each per occurrence. Startup and shutdown events shall not exceed 300 occurrences per calendar year. [District Rule 2201]
 33. Emission rates from this unit, except during startup and shutdown events, shall not exceed any of the following: NO_x (as NO₂) - 6.21 lb/hr and 3.6 ppmvd @ 15% O₂; VOC (as methane) - 1.17 lb/hr and 2.0 ppmvd @ 15% O₂; CO - 6.25 lb/hr and 6.0 ppmvd @ 15% O₂; PM₁₀ - 3.3 lb/hr; or SO_x (as SO₂) - 0.33 lb/hr. All emission concentration limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]
 34. Maximum daily emissions from this unit shall not exceed any of the following limits: NO_x (as NO₂) - 150.5 lb/day; VOC - 28.1 lb/day; CO - 151.5 lb/day; PM₁₀ - 79.2 lb/day; or SO_x (as SO₂) - 7.9 lb/day. [District Rule 2201]
 35. Maximum annual emissions from this unit shall not exceed any of the following limits: NO_x (as NO₂) - 46,510 lb/year; VOC - 2,844 lb/year; CO - 21,830 lb/year; PM₁₀ - 26,400 lb/year; or SO_x (as SO₂) - 2,640 lb/year. [District Rule 2201]
 36. The ammonia (NH₃) emissions shall not exceed 10 ppmvd @ 15% O₂ over a 24 hour rolling average. [District Rule 2201]
 37. Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O₂ = ((a - (b x c/1,000,000)) x (1,000,000 / b) x d, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NO_x concentration ppmvd @ 15% O₂ across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH₃ CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 4102]
 38. Source testing to measure the NO_x, CO, and VOC emission limits (lb/hr and ppmvd @ 15% O₂) shall be conducted within 60 days of initial operation of the CTG and at least once every twelve months thereafter. [District Rule 1081]

CONDITIONS FOR APPLICATION C-3929-2-1

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39. Source testing to measure the PM10 emission limit (lb/hr), the natural gas sulfur content limit, and the ammonia emission limit shall be conducted within 60 days of initial operation and at least once every twelve months thereafter. [District Rule 1081]
 40. Source testing of startup NOx, CO, VOC, and PM10 mass emission rates shall be conducted for one of the gas turbine engines (C-3929-1 or C-3929-2) upon initial operation and at least once every seven years thereafter. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081]
 41. Source testing to determine the percent efficiency of the turbine shall be within 60 days of initial operation and at least once every twelve months thereafter. [District Rule 4703]
 42. Compliance demonstration (source testing) shall be District witnessed, or authorized and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
 43. The following test methods shall be used PM10: EPA Method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. Alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]
 44. Source testing to determine the percent efficiency of the turbine shall be conducted utilizing the procedures in District Rule 4703 (Stationary Gas Turbines). [District Rule 4703]
 45. The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 2201 and 4703]
 46. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201 and 4703]
 47. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
 48. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
 49. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
 50. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100]
 51. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100]

CONDITIONS FOR APPLICATION C-3929-2-1

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- INSPECTION WORKSHEET**
52. The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]
 53. All records required to be maintained by this permit shall be maintained for a period of at least two years and shall be made readily available for District inspection upon request. [District Rule 2201]
 54. Permittee shall submit an application to comply with Rule 2520 - Federally Mandated Operating Permits within twelve months of commencing operation. [District Rule 2520]
 55. Permittee shall submit an application to comply with Rule 2540 - Acid Rain Program. [District Rule 2540]
 56. Disturbances of soil related to any construction, demolition, excavation, extraction, and other earthmoving activities shall comply with the requirements for fugitive dust control in SJVUAPCD District Rule 8021 (11/15/01) unless specifically exempted under section 4.0 of Rule 8021. [District Rule 8021]
 57. Outdoor handling, storage, and transport of any bulk material shall comply with the requirements of SJVUAPCD District Rule 8031 (11/15/01), unless specifically exempted under section 4.0 of Rule 8031. [District Rule 8031]
 58. All sites that are subject to SJVUAPCD District Rule 8021, SJVUAPCD District Rule 8031, and SJVUAPCD District Rule 8071 shall comply with the requirements of SJVUAPCD District Rule 8041 (11/15/01), unless specifically exempted under section 4.0 of Rule 8041. [District Rule 8041]
 59. Any open area having 3.0 acres or more of disturbed surface area, that has remained undeveloped, unoccupied, unused or vacant for more than seven days shall comply with the requirements of SJVUAPCD District Rule 8051 (11/15/01), unless specifically exempted under section 4.0 of Rule 8051. [District Rule 8051]
 60. Any new or existing public or private paved or unpaved road, road construction project, or road modification project shall implement the control measures and design criteria of, and comply with the requirements of SJVUAPCD District Rule 8061 (11/15/01) unless specifically exempted under section 4.0 of Rule 8061. [District Rule 8061]
 61. Any unpaved vehicle/equipment traffic area of 1.0 acre or larger shall comply with the requirements of SJVUAPCD District Rule 8071 (11/15/01), unless specifically exempted under section 4.0 of Rule 8071. [District Rule 8071]

APPENDIX D

SJVAPCD Revised Authority to Construct

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: C-3929-1-2

LEGAL OWNER OR OPERATOR: GWF ENERGY LLC - HENRIETTA
MAILING ADDRESS: 4300 RAILROAD AVE
PITTSBURG, CA 94565

LOCATION: 25TH AVE
LEMOORE, CA

SECTION: NW 34 TOWNSHIP: 19 S RANGE: 19 E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 46.9 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #1 CONSISTING OF A GENERAL ELECTRIC MODEL LM6000 PC SPRINT NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH WATER SPRAY PREMIXED COMBUSTION SYSTEM, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST: REVISE/CLARIFY PERMIT CONDITIONS ASSOCIATED WITH STARTUP OR SHUTDOWN EVENT AND LOWER PM10 EMISSIONS BASED ON SOURCE TEST RESULTS.

CONDITIONS

1. Authority to Construct permit C-3929-1-1 shall be implemented prior to or concurrent with this Authority to Construct permit. [District Rule 2201]
2. Upon implementation of C-3929-1-2 and C-3929-2-2, emission offsets shall be provided to offset the following increases in: PM10 - Q1: 700 lb, Q2: 700 lb, Q3: 700 lb, and Q4: 700 lb and NOx (as NO2) - Q1: 19,370 lb, Q2: 20,140 lb, Q3: 20,140 lb, and Q4: 19,370 lb. Offsets shall be provided at the appropriate distance ratio specified in Rule 2201. SOx offsets provided to offset PM10 increases shall be at an interpollutant ratio of 1.4:1 and applicable distance ratio. [District Rule 2201]
3. {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]
4. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
6. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

DAVID L. CROW, Executive Director / APCO

SEYED SADREDDIN, Director of Permit Services
C-3929-1-2 Nov 27 2002 9:20 AM - REC'D PERMITS - Joint Inspection NOT Required

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726 • (559) 230-5900 • Fax (559) 230-6061

Conditions for C-3929-1-2 (continued)

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7. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. [District Rule 2201]
8. Combustion turbine generator (CTG) and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rule 2201]
9. The CTG shall be equipped with a continuous monitoring system to measure and record hours of operation, mass ratio of water-to-fuel injected, and fuel consumption. [District Rules 2201, 4001, and 4703]
10. Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201]
11. The CTG shall be equipped with a continuous emission monitor (CEM) for NO_x (before and after SCR system), CO, and O₂. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and 40 CFR part 75, and District-approved protocol, and shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided the CEM(s) pass the relative accuracy requirement for startups and shutdowns specified herein. If relative accuracy of CEM(s) cannot be demonstrated during startup conditions, CEM results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits contained in this document. [District Rules 2201, 4001, and 4703]
12. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
13. The CTG shall be fired exclusively on natural gas with a sulfur content of no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]
14. During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (C-3929-1 and C-3929-2) shall not exceed any of the following limits: NO_x (as NO₂) - 15.4 lb, CO - 15.4 lb, or VOC - 1.4 lb per event. [District Rules 2201 and 4102]
15. Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr and ppmvd emission limits in condition #16. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup and shutdown of gas turbine engine shall not exceed a time period of one hour each per occurrence. [District Rule 2201]
16. Emission rates from this unit, except during startup and shutdown events, shall not exceed any of the following limits: NO_x (as NO₂) - 6.21 lb/hr and 3.6 ppmvd @ 15% O₂; VOC (as methane) - 1.17 lb/hr and 2.0 ppmvd @ 15% O₂; CO - 6.25 lb/hr and 6.0 ppmvd @ 15% O₂; PM₁₀ - 2.0 lb/hr; or SO_x (as SO₂) - 0.33 lb/hr. All emission concentration limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]
17. Maximum daily emissions from this unit shall not exceed any of the following limits: NO_x (as NO₂) - 150.5 lb/day; VOC - 28.1 lb/day; CO - 151.5 lb/day; PM₁₀ - 48.0 lb/day; or SO_x (as SO₂) - 7.9 lb/day. [District Rule 2201]
18. Maximum annual emissions from this unit shall not exceed any of the following limits: NO_x (as NO₂) - 46,510 lb/year; VOC - 2,844 lb/year; CO - 21,830 lb/year; PM₁₀ - 16,000 lb/year; or SO_x (as SO₂) - 2,640 lb/year. [District Rule 2201]
19. The ammonia (NH₃) emissions shall not exceed 10 ppmvd @ 15% O₂ over a 24 hour rolling average. [District Rule 2201]
20. Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O₂ = $((a - (b \times c / 1,000,000)) \times (1,000,000 / b) \times d$, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NO_x concentration ppmvd @ 15% O₂ across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH₃ CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 4102]

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CONDITIONS CONTINUE ON NEXT PAGE

Conditions for C-3929-1-2 (continued)

Page 3 of 3

21. Source testing to measure the NOx, CO, and VOC emission limits (lb/hr and ppmvd @ 15% O2) shall be conducted at least once every twelve months. [District Rule 1081]
22. Source testing to measure the PM10 emission limit (lb/hr), the natural gas sulfur content limit, and the ammonia emission limit shall be conducted at least once every twelve months. [District Rule 1081]
23. Source testing of startup NOx, CO, VOC, and PM10 mass emission rates shall be conducted for one of the gas turbine engines (C-3929-1 or C-3929-2) at least once every seven years. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081]
24. Compliance demonstration (source testing) shall be District witnessed or authorized, and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
25. The following test methods shall be used PM10: EPA Method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]
26. The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 2201 and 4703]
27. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201 and 4703]
28. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
29. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
30. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
31. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100, 6.1]
32. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100, 7.0]
33. The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]
34. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rule 2201]

Conditions for C-3929-1-2 (continued)

Page 3 of 3

21. Source testing to measure the NOx, CO, and VOC emission limits (lb/hr and ppmvd @ 15% O2) shall be conducted at least once every twelve months. [District Rule 1081]
22. Source testing to measure the PM10 emission limit (lb/hr), the natural gas sulfur content limit, and the ammonia emission limit shall be conducted at least once every twelve months. [District Rule 1081]
23. Source testing of startup NOx, CO, VOC, and PM10 mass emission rates shall be conducted for one of the gas turbine engines (C-3929-1 or C-3929-2) at least once every seven years. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081]
24. Compliance demonstration (source testing) shall be District witnessed or authorized, and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
25. The following test methods shall be used PM10: EPA Method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]
26. The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 2201 and 4703]
27. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201 and 4703]
28. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
29. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
30. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
31. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100, 6.1]
32. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100, 7.0]
33. The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]
34. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rule 2201]

Conditions for C-3929-1-2 (continued)

Page 3 of 3

21. Source testing to measure the NO_x, CO, and VOC emission limits (lb/hr and ppmvd @ 15% O₂) shall be conducted at least once every twelve months. [District Rule 1081]
22. Source testing to measure the PM₁₀ emission limit (lb/hr), the natural gas sulfur content limit, and the ammonia emission limit shall be conducted at least once every twelve months. [District Rule 1081]
23. Source testing of startup NO_x, CO, VOC, and PM₁₀ mass emission rates shall be conducted for one of the gas turbine engines (C-3929-1 or C-3929-2) at least once every seven years. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081]
24. Compliance demonstration (source testing) shall be District witnessed or authorized, and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
25. The following test methods shall be used PM₁₀: EPA Method 5 (front half and back half), NO_x: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O₂: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]
26. The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 2201 and 4703]
27. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NO_x mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201 and 4703]
28. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
29. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
30. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
31. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100, 6.1]
32. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100, 7.0]
33. The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]
34. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rule 2201]

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: C-3929-2-2

LEGAL OWNER OR OPERATOR: GWF ENERGY LLC - HENRIETTA
MAILING ADDRESS: 4300 RAILROAD AVE
PITTSBURG, CA 94565

LOCATION: 25TH AVE
LEMOORE, CA

SECTION: SW 34 **TOWNSHIP:** 19 S **RANGE:** 19 E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 46.9 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #2 CONSISTING OF A GENERAL ELECTRIC MODEL LM6000 PC SPRINT NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH WATER SPRAY PREMIXED COMBUSTION SYSTEM, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST: REVISE/CLARIFY PERMIT CONDITIONS ASSOCIATED WITH STARTUP OR SHUTDOWN EVENT AND LOWER PM10 EMISSIONS BASED ON SOURCE TEST RESULTS.

CONDITIONS

1. Authority to Construct permit C-3929-2-1 shall be implemented prior to or concurrent with this Authority to Construct permit. [District Rule 2201]
2. Upon implementation of C-3929-1-2 and C-3929-2-2, emission offsets shall be provided to offset the following increases in: PM10 - Q1: 700 lb, Q2: 700 lb, Q3: 700 lb, and Q4: 700 lb and NOx (as NO2) - Q1: 19,370 lb, Q2: 20,140 lb, Q3: 20,140 lb, and Q4: 19,370 lb. Offsets shall be provided at the appropriate distance ratio specified in Rule 2201. SOx offsets provided to offset PM10 increases shall be at an interpollutant ratio of 1.4:1 and applicable distance ratio. [District Rule 2201]
3. {271} All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]
4. {118} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. {14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
6. {15} No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5850 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

DAVID L. CROW, Executive Director, APSCO

SEYED SADREKH, Director of Permit Services

C-3929-2-2: Nov 27 2002 8:21AM - REFUELED : Joint Inspection NOT Required

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726 • (559) 230-5900 • Fax (559) 230-6061

Conditions for C-3929-2-2 (continued)

Page 2 of 3

7. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. [District Rule 2201]
8. Combustion turbine generator (CTG) and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rule 2201]
9. The CTG shall be equipped with a continuous monitoring system to measure and record hours of operation, mass ratio of water-to-fuel injected, and fuel consumption. [District Rules 2201, 4001, and 4703]
10. Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201]
11. The CTG shall be equipped with a continuous emission monitor (CEM) for NO_x (before and after SCR system), CO, and O₂. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and 40 CFR part 75, and District-approved protocol, and shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided the CEM(s) pass the relative accuracy requirement for startups and shutdowns specified herein. If relative accuracy of CEM(s) cannot be demonstrated during startup conditions, CEM results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits contained in this document. [District Rules 2201, 4001, and 4703]
12. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
13. The CTG shall be fired exclusively on natural gas with a sulfur content of no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]
14. During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (C-3929-1 and C-3929-2) shall not exceed any of the following limits: NO_x (as NO₂) - 15.4 lb, CO - 15.4 lb, or VOC - 1.4 lb per event. [District Rules 2201 and 4102]
15. Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr and ppmvd emission limits in condition #16. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup and shutdown of gas turbine engine shall not exceed a time period of one hour each per occurrence. [District Rule 2201]
16. Emission rates from this unit, except during startup and shutdown events, shall not exceed any of the following limits: NO_x (as NO₂) - 6.21 lb/hr and 3.6 ppmvd @ 15% O₂; VOC (as methane) - 1.17 lb/hr and 2.0 ppmvd @ 15% O₂; CO - 6.25 lb/hr and 6.0 ppmvd @ 15% O₂; PM₁₀ - 2.0 lb/hr; or SO_x (as SO₂) - 0.33 lb/hr. All emission concentration limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]
17. Maximum daily emissions from this unit shall not exceed any of the following limits: NO_x (as NO₂) - 150.5 lb/day; VOC - 28.1 lb/day; CO - 151.5 lb/day; PM₁₀ - 48.0 lb/day; or SO_x (as SO₂) - 7.9 lb/day. [District Rule 2201]
18. Maximum annual emissions from this unit shall not exceed any of the following limits: NO_x (as NO₂) - 46,510 lb/year; VOC - 2,844 lb/year; CO - 21,830 lb/year; PM₁₀ - 16,000 lb/year; or SO_x (as SO₂) - 2,640 lb/year. [District Rule 2201]
19. The ammonia (NH₃) emissions shall not exceed 10 ppmvd @ 15% O₂ over a 24 hour rolling average. [District Rule 2201]
20. Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O₂ = $((a - (b \times c / 1,000,000)) \times (1,000,000 / b) \times d$, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NO_x concentration ppmvd @ 15% O₂ across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH₃ CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 4102]

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CONDITIONS CONTINUE ON NEXT PAGE

Conditions for C-3929-2-2 (continued)

Page 3 of 3

21. Source testing to measure the NO_x, CO, and VOC emission limits (lb/hr and ppmvd @ 15% O₂) shall be conducted at least once every twelve months. [District Rule 1081]
22. Source testing to measure the PM₁₀ emission limit (lb/hr), the natural gas sulfur content limit, and the ammonia emission limit shall be conducted at least once every twelve months. [District Rule 1081]
23. Source testing of startup NO_x, CO, VOC, and PM₁₀ mass emission rates shall be conducted for one of the gas turbine engines (C-3929-1 or C-3929-2) at least once every seven years. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081]
24. Compliance demonstration (source testing) shall be District witnessed or authorized, and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
25. The following test methods shall be used PM₁₀: EPA Method 5 (front half and back half), NO_x: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O₂: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]
26. The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 2201 and 4703]
27. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NO_x mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201 and 4703]
28. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
29. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
30. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
31. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100, 6.1]
32. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100, 7.0]
33. The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]
34. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rule 2201]



San Joaquin Valley Air Pollution Control District

FILE

AUTHORITY TO CONSTRUCT

PERMIT NO: C-3929-1-2

ISSUANCE DATE: 11/27/2002

LEGAL OWNER OR OPERATOR: GWF ENERGY LLC - HENRIETTA
MAILING ADDRESS: 4300 RAILROAD AVE
PITTSBURG, CA 94565

LOCATION: 25TH AVE
LEMOORE, CA

SECTION: NW 34 TOWNSHIP: 19 S RANGE: 19 E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 46.9 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #1 CONSISTING OF A GENERAL ELECTRIC MODEL LM6000 PG SPRINT NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH WATER SPRAY PREMIXED COMBUSTION SYSTEM, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST: REVISE/CLARIFY PERMIT CONDITIONS ASSOCIATED WITH STARTUP OR SHUTDOWN EVENT AND LOWER PM10 EMISSIONS BASED ON SOURCE TEST RESULTS.

*Converted
11/27/02
EL*

CONDITIONS

1. Authority to Construct permit C-3929-1-1 shall be implemented prior to or concurrent with this Authority to Construct permit. [District Rule 2201]
2. Upon implementation of C-3929-1-2 and C-3929-2-2, emission offsets shall be provided to offset the following increases in: PM10 - Q1: 700 lb, Q2: 700 lb, Q3: 700 lb, and Q4: 700 lb and NOx (as NO2) - Q1: 19,370 lb, Q2: 20,140 lb, Q3: 20,140 lb, and Q4: 19,370 lb. Offsets shall be provided at the appropriate distance ratio specified in Rule 2201. SOx offsets provided to offset PM10 increases shall be at an interpollutant ratio of 1.4:1 and applicable distance ratio. [District Rule 2201]
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]
4. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
6. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

DAVID L. CROW, Executive Director / APCO

SEYED SADREDIN, Director of Permit Services

C-3929-1-2, Nov 27 2002 1:15PM - MLEGAZ Job Inspection NOT Required

Conditions for C-3929-1-2 (continued)

Page 2 of 3
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7. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. [District Rule 2201]
8. Combustion turbine generator (CTG) and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rule 2201]
9. The CTG shall be equipped with a continuous monitoring system to measure and record hours of operation, mass ratio of water-to-fuel injected, and fuel consumption. [District Rules 2201, 4001, and 4703]
10. Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201]
11. The CTG shall be equipped with a continuous emission monitor (CEM) for NO_x (before and after SCR system), CO, and O₂. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and 40 CFR part 75, and District-approved protocol, and shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided the CEM(s) pass the relative accuracy requirement for startups and shutdowns specified herein. If relative accuracy of CEM(s) cannot be demonstrated during startup conditions, CEM results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits contained in this document. [District Rules 2201, 4001, and 4703]
12. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
13. The CTG shall be fired exclusively on natural gas with a sulfur content of no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]
14. During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (C-3929-1 and C-3929-2) shall not exceed any of the following limits: NO_x (as NO₂) - 15.4 lb, CO - 15.4 lb, or VOC - 1.4 lb per event. [District Rules 2201 and 4102]
15. Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr and ppmvd emission limits in condition #16. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup and shutdown of gas turbine engine shall not exceed a time period of one hour each per occurrence. [District Rule 2201]
16. Emission rates from this unit, except during startup and shutdown events, shall not exceed any of the following limits: NO_x (as NO₂) - 6.21 lb/hr and 3.6 ppmvd @ 15% O₂; VOC (as methane) - 1.17 lb/hr and 2.0 ppmvd @ 15% O₂; CO - 6.25 lb/hr and 6.0 ppmvd @ 15% O₂; PM₁₀ - 2.0 lb/hr; or SO_x (as SO₂) - 0.33 lb/hr. All emission concentration limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]
17. Maximum daily emissions from this unit shall not exceed any of the following limits: NO_x (as NO₂) - 150.5 lb/day; VOC - 28.1 lb/day; CO - 151.5 lb/day; PM₁₀ - 48.0 lb/day; or SO_x (as SO₂) - 7.9 lb/day. [District Rule 2201]
18. Maximum annual emissions from this unit shall not exceed any of the following limits: NO_x (as NO₂) - 46,510 lb/year; VOC - 2,844 lb/year; CO - 21,830 lb/year; PM₁₀ - 16,000 lb/year; or SO_x (as SO₂) - 2,640 lb/year. [District Rule 2201]
19. The ammonia (NH₃) emissions shall not exceed 10 ppmvd @ 15% O₂ over a 24 hour rolling average. [District Rule 2201]
20. Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O₂ = ((a - (b x c/1,000,000)) x (1,000,000 / b) x d, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NO_x concentration ppmvd @ 15% O₂ across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH₃ CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

Conditions for C-3929-1-2 (continued)

Page 3 of 3
FILE

21. Source testing to measure the NO_x, CO, and VOC emission limits (lb/hr and ppmvd @ 15% O₂) shall be conducted at least once every twelve months. [District Rule 1081]
22. Source testing to measure the PM₁₀ emission limit (lb/hr), the natural gas sulfur content limit, and the ammonia emission limit shall be conducted at least once every twelve months. [District Rule 1081]
23. Source testing of startup NO_x, CO, VOC, and PM₁₀ mass emission rates shall be conducted for one of the gas turbine engines (C-3929-1 or C-3929-2) at least once every seven years. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081]
24. Compliance demonstration (source testing) shall be District witnessed or authorized, and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
25. The following test methods shall be used PM₁₀: EPA Method 5 (front half and back half), NO_x: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O₂: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]
26. The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 2201 and 4703]
27. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NO_x mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201 and 4703]
28. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
29. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
30. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
31. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100, 6.1]
32. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100, 7.0]
33. The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]
34. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rule 2201]



San Joaquin Valley Air Pollution Control District

FILE

AUTHORITY TO CONSTRUCT

PERMIT NO: C-3929-2-2

ISSUANCE DATE: 11/27/2002

LEGAL OWNER OR OPERATOR: GWF ENERGY LLC - HENRIETTA
MAILING ADDRESS: 4300 RAILROAD AVE
PITTSBURG, CA 94565

*Converted
11/27/02
EV*

LOCATION: 25TH AVE
LEMOORE, CA

SECTION: SW 34 TOWNSHIP: 19 S RANGE: 19 E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 46.9 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #2 CONSISTING OF A GENERAL ELECTRIC MODEL LM6000 PC SPRINT NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH WATER SPRAY PREMIXED COMBUSTION SYSTEM, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST; REVISE/CLARIFY PERMIT CONDITIONS ASSOCIATED WITH STARTUP OR SHUTDOWN EVENT AND LOWER PM10 EMISSIONS BASED ON SOURCE TEST RESULTS.

CONDITIONS

1. Authority to Construct permit C-3929-2-1 shall be implemented prior to or concurrent with this Authority to Construct permit. [District Rule 2201]
2. Upon implementation of C-3929-1-2 and C-3929-2-2, emission offsets shall be provided to offset the following increases in: PM10 - Q1: 700 lb, Q2: 700 lb, Q3: 700 lb, and Q4: 700 lb and NOx (as NO2) - Q1: 19,370 lb, Q2: 20,140 lb, Q3: 20,140 lb, and Q4: 19,370 lb. Offsets shall be provided at the appropriate distance ratio specified in Rule 2201. SOx offsets provided to offset PM10 increases shall be at an interpollutant ratio of 1.4:1 and applicable distance ratio. [District Rule 2201]
3. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]
4. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
5. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
6. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (559) 230-5950 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

DAVID L. CROW, Executive Director / APCO

[Signature]
for SEYED SAOREDIN, Director of Permit Services

Conditions for C-3929-2-2 (continued)

Page 2 of 3

7. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. [District Rule 2201]
8. Combustion turbine generator (CTG) and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rule 2201]
9. The CTG shall be equipped with a continuous monitoring system to measure and record hours of operation, mass ratio of water-to-fuel injected, and fuel consumption. [District Rules 2201, 4001, and 4703]
10. Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201]
11. The CTG shall be equipped with a continuous emission monitor (CEM) for NOx (before and after SCR system), CO, and O2. Continuous emission monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and 40 CFR part 75, and District-approved protocol, and shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided the CEM(s) pass the relative accuracy requirement for startups and shutdowns specified herein. If relative accuracy of CEM(s) cannot be demonstrated during startup conditions, CEM results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits contained in this document. [District Rules 2201, 4001, and 4703]
12. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NOx, CO, and O2 analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
13. The CTG shall be fired exclusively on natural gas with a sulfur content of no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]
14. During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (C-3929-1 and C-3929-2) shall not exceed any of the following limits: NOx (as NO2) - 15.4 lb, CO - 15.4 lb, or VOC - 1.4 lb per event. [District Rules 2201 and 4102]
15. Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr and ppmvd emission limits in condition #16. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup and shutdown of gas turbine engine shall not exceed a time period of one hour each per occurrence. [District Rule 2201]
16. Emission rates from this unit, except during startup and shutdown events, shall not exceed any of the following limits: NOx (as NO2) - 6.21 lb/hr and 3.6 ppmvd @ 15% O2; VOC (as methane) - 1.17 lb/hr and 2.0 ppmvd @ 15% O2; CO - 6.25 lb/hr and 6.0 ppmvd @ 15% O2; PM10 - 2.0 lb/hr; or SOx (as SO2) - 0.33 lb/hr. All emission concentration limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]
17. Maximum daily emissions from this unit shall not exceed any of the following limits: NOx (as NO2) - 150.5 lb/day; VOC - 28.1 lb/day; CO - 151.5 lb/day; PM10 - 48.0 lb/day; or SOx (as SO2) - 7.9 lb/day. [District Rule 2201]
18. Maximum annual emissions from this unit shall not exceed any of the following limits: NOx (as NO2) - 46,510 lb/year; VOC - 2,844 lb/year; CO - 21,830 lb/year; PM10 - 16,000 lb/year; or SOx (as SO2) - 2,640 lb/year. [District Rule 2201]
19. The ammonia (NH3) emissions shall not exceed 10 ppmvd @ 15% O2 over a 24 hour rolling average. [District Rule 2201]
20. Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O2 = $((a - (b \times c / 1,000,000)) \times (1,000,000 / b) \times d$, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NOx concentration ppmvd @ 15% O2 across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH3 CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 4102]

CONDITIONS CONTINUE ON NEXT PAGE

Conditions for C-3929-2-2 (continued)

Page 3 of 3

21. Source testing to measure the NOx, CO, and VOC emission limits (lb/hr and ppmvd @ 15% O2) shall be conducted at least once every twelve months. [District Rule 1081]
22. Source testing to measure the PM10 emission limit (lb/hr), the natural gas sulfur content limit, and the ammonia emission limit shall be conducted at least once every twelve months. [District Rule 1081]
23. Source testing of startup NOx, CO, VOC, and PM10 mass emission rates shall be conducted for one of the gas turbine engines (C-3929-1 or C-3929-2) at least once every seven years. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081]
24. Compliance demonstration (source testing) shall be District witnessed or authorized, and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
25. The following test methods shall be used PM10: EPA Method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]
26. The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 2201 and 4703]
27. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201 and 4703]
28. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
29. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
30. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
31. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100, 6.1]
32. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100, 7.0]
33. The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]
34. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rule 2201]

APPENDIX E

SJVAPCD Revised Permit to Operate



San Joaquin Valley
Air Pollution Control District

Permit to Operate

FACILITY: C-3929

EXPIRATION DATE: 06/30/2007

LEGAL OWNER OR OPERATOR:
MAILING ADDRESS:

GWF ENERGY LLC - HENRIETTA
4300 RAILROAD AVE
PITTSBURG, CA 94565

FACILITY LOCATION:

25TH AVE
LEMOORE, CA

FACILITY DESCRIPTION:

ELECTRICAL GENERATION

The Facility's Permit to Operate may include Facility-wide Requirements as well as requirements that apply to specific permit units.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require prior District approval. This permit shall be posted as prescribed in District Rule 2010.

David L. Crow
Executive Director / APCO

Seyed Sadredin
Director of Permit Services

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: C-3929-1-2

EXPIRATION DATE: 06/30/2007

SECTION: NW 34 TOWNSHIP: 19 S RANGE: 19 E

EQUIPMENT DESCRIPTION:

46.9 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #1 CONSISTING OF A GENERAL ELECTRIC MODEL LM6000 PC SPRINT NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH WATER SPRAY PREMIXED COMBUSTION SYSTEM, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST

PERMIT UNIT REQUIREMENTS

1. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
5. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. [District Rule 2201]
6. Combustion turbine generator (CTG) and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rule 2201]
7. The CTG shall be equipped with a continuous monitoring system to measure and record hours of operation, mass ratio of water-to-fuel injected, and fuel consumption. [District Rules 2201, 4001, and 4703]
8. Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201]
9. The CTG shall be equipped with a continuous emission monitor (CEM) for NO_x (before and after SCR system), CO, and O₂. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and 40 CFR part 75, and District-approved protocol, and shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided the CEM(s) pass the relative accuracy requirement for startups and shutdowns specified herein. If relative accuracy of CEM(s) cannot be demonstrated during startup conditions, CEM results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits contained in this document. [District Rules 2201, 4001, and 4703]
10. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
11. The CTG shall be fired exclusively on natural gas with a sulfur content of no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

Facility Name: GWF ENERGY LLC - HENRIETTA
 Location: 25TH AVE, LEMOORE, CA
 C-3929-1-2: Jan 2 2003 1:27PM VILLEOAE

Permit Unit Requirements for C-3929-1-2 (continued)

Page 2 of 3

12. During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (C-3929-1 and C-3929-2) shall not exceed any of the following limits: NOx (as NO₂) - 15.4 lb, CO - 15.4 lb, or VOC - 1.4 lb per event. [District Rules 2201 and 4102]
13. Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr and ppmvd emission limits in condition #16. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup and shutdown of gas turbine engine shall not exceed a time period of one hour each per occurrence. [District Rule 2201]
14. Emission rates from this unit, except during startup and shutdown events, shall not exceed any of the following limits: NOx (as NO₂) - 6.21 lb/hr and 3.6 ppmvd @ 15% O₂; VOC (as methane) - 1.17 lb/hr and 2.0 ppmvd @ 15% O₂; CO - 6.25 lb/hr and 6.0 ppmvd @ 15% O₂; PM₁₀ - 2.0 lb/hr; or SOx (as SO₂) - 0.33 lb/hr. All emission concentration limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]
15. Maximum daily emissions from this unit shall not exceed any of the following limits: NOx (as NO₂) - 150.5 lb/day; VOC - 28.1 lb/day; CO - 151.5 lb/day; PM₁₀ - 48.0 lb/day; or SOx (as SO₂) - 7.9 lb/day. [District Rule 2201]
16. Maximum annual emissions from this unit shall not exceed any of the following limits: NOx (as NO₂) - 46,510 lb/year; VOC - 2,844 lb/year; CO - 21,830 lb/year; PM₁₀ - 16,000 lb/year; or SOx (as SO₂) - 2,640 lb/year. [District Rule 2201]
17. The ammonia (NH₃) emissions shall not exceed 10 ppmvd @ 15% O₂ over a 24 hour rolling average. [District Rule 2201]
18. Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O₂ = $((a - (b \times c / 1,000,000)) \times (1,000,000 / b) \times d$, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NOx concentration ppmvd @ 15% O₂ across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH₃ CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 4102]
19. Source testing to measure the NOx, CO, and VOC emission limits (lb/hr and ppmvd @ 15% O₂) shall be conducted at least once every twelve months. [District Rule 1081]
20. Source testing to measure the PM₁₀ emission limit (lb/hr), the natural gas sulfur content limit, and the ammonia emission limit shall be conducted at least once every twelve months. [District Rule 1081]
21. Source testing of startup NOx, CO, VOC, and PM₁₀ mass emission rates shall be conducted for one of the gas turbine engines (C-3929-1 or C-3929-2) at least once every seven years. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081]
22. Compliance demonstration (source testing) shall be District witnessed or authorized, and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
23. The following test methods shall be used PM₁₀: EPA Method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O₂: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]
24. The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 2201 and 4703]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

Permit Unit Requirements for C-3929-1-2 (continued)

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25. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201 and 4703]
26. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
27. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]
28. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080]
29. Permittee shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100, 6.1]
30. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100, 7.0]
31. The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]
32. All records required to be maintained by this permit shall be maintained for a period of at least five years and shall be made readily available for District inspection upon request. [District Rule 2201]
33. All sites that are subject to SJVUAPCD District Rule 8021, SJVUAPCD District Rule 8031, and SJVUAPCD District Rule 8071 shall comply with the requirements of SJVUAPCD District Rule 8041 (11/15/01), unless specifically exempted under section 4.0 of Rule 8041. [District Rule 8041]
34. Any open area having 3.0 acres or more of disturbed surface area, that has remained undeveloped, unoccupied, unused or vacant for more than seven days shall comply with the requirements of SJVUAPCD District Rule 8051 (11/15/01), unless specifically exempted under section 4.0 of Rule 8051. [District Rule 8051]
35. Any new or existing public or private paved or unpaved road, road construction project, or road modification project shall implement the control measures and design criteria of, and comply with the requirements of SJVUAPCD District Rule 8061 (11/15/01) unless specifically exempted under section 4.0 of Rule 8061. [District Rule 8061]
36. Any unpaved vehicle/equipment traffic area of 1.0 acre or larger shall comply with the requirements of SJVUAPCD District Rule 8071 (11/15/01), unless specifically exempted under section 4.0 of Rule 8071. [District Rule 8071]

These terms and conditions are part of the Facility-wide Permit to Operate.

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: C-3929-2-2

EXPIRATION DATE: 06/30/2007

SECTION: SW 34 TOWNSHIP: 19 S RANGE: 19 E

EQUIPMENT DESCRIPTION:

46.9 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #2 CONSISTING OF A GENERAL ELECTRIC MODEL LM6000 PC SPRINT NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH WATER SPRAY PREMIXED COMBUSTION SYSTEM, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST

PERMIT UNIT REQUIREMENTS

1. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule]
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
3. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]
4. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]
5. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. [District Rule 2201]
6. Combustion turbine generator (CTG) and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rule 2201]
7. The CTG shall be equipped with a continuous monitoring system to measure and record hours of operation, mass ratio of water-to-fuel injected, and fuel consumption. [District Rules 2201, 4001, and 4703]
8. Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201]
9. The CTG shall be equipped with a continuous emission monitor (CEM) for NO_x (before and after SCR system), CO, and O₂. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and 40 CFR part 75, and District-approved protocol, and shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided the CEM(s) pass the relative accuracy requirement for startups and shutdowns specified herein. If relative accuracy of CEM(s) cannot be demonstrated during startup conditions, CEM results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits contained in this document. [District Rules 2201, 4001, and 4703]
10. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
11. The CTG shall be fired exclusively on natural gas with a sulfur content of no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

Facility Name: GWF ENERGY LLC - HENRIETTA
 Location: 25TH AVE, LEMOORE, CA
 C-3929-2-2 Jan 23 2003 1:27PM - VILLECAG

Permit Unit Requirements for C-3929-2-2 (continued)

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12. During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (C-3929-1 and C-3929-2) shall not exceed any of the following limits: NOx (as NO₂) - 15.4 lb, CO - 15.4 lb, or VOC - 1.4 lb per event. [District Rules 2201 and 4102]
13. Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr and ppmvd emission limits in condition #16. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup and shutdown of gas turbine engine shall not exceed a time period of one hour each per occurrence. [District Rule 2201]
14. Emission rates from this unit, except during startup and shutdown events, shall not exceed any of the following limits: NOx (as NO₂) - 6.21 lb/hr and 3.6 ppmvd @ 15% O₂; VOC (as methane) - 1.17 lb/hr and 2.0 ppmvd @ 15% O₂; CO - 6.25 lb/hr and 6.0 ppmvd @ 15% O₂; PM₁₀ - 2.0 lb/hr; or SOx (as SO₂) - 0.33 lb/hr. All emission concentration limits are three-hour rolling averages. [District Rules 2201, 4001, and 4703]
15. Maximum daily emissions from this unit shall not exceed any of the following limits: NOx (as NO₂) - 150.5 lb/day; VOC - 28.1 lb/day; CO - 151.5 lb/day; PM₁₀ - 48.0 lb/day; or SOx (as SO₂) - 7.9 lb/day. [District Rule 2201]
16. Maximum annual emissions from this unit shall not exceed any of the following limits: NOx (as NO₂) - 46,510 lb/year; VOC - 2,844 lb/year; CO - 21,830 lb/year; PM₁₀ - 16,000 lb/year; or SOx (as SO₂) - 2,640 lb/year. [District Rule 2201]
17. The ammonia (NH₃) emissions shall not exceed 10 ppmvd @ 15% O₂ over a 24 hour rolling average. [District Rule 2201]
18. Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O₂ = ((a - (b x c/1,000,000)) x (1,000,000 / b) x d, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NOx concentration ppmvd @ 15% O₂ across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH₃ CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 4102]
19. Source testing to measure the NOx, CO, and VOC emission limits (lb/hr and ppmvd @ 15% O₂) shall be conducted at least once every twelve months. [District Rule 1081]
20. Source testing to measure the PM₁₀ emission limit (lb/hr), the natural gas sulfur content limit, and the ammonia emission limit shall be conducted at least once every twelve months. [District Rule 1081]
21. Source testing of startup NOx, CO, VOC, and PM₁₀ mass emission rates shall be conducted for one of the gas turbine engines (C-3929-1 or C-3929-2) at least once every seven years. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081]
22. Compliance demonstration (source testing) shall be District witnessed or authorized, and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]
23. The following test methods shall be used PM₁₀: EPA Method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O₂: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081, 4001, and 4703]
24. The permittee shall maintain the following records: date and time, duration, and type of any startup, shutdown, or malfunction; performance testing, evaluations, calibrations, checks, adjustments, any period during which a continuous monitoring system or monitoring device was inoperative, and maintenance of any continuous emission monitor. [District Rules 2201 and 4703]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

Facility Name: GWF ENERGY LLC - HENRIETTA
 Location: 25TH AVE, LEMOORE, CA
 C-3929-2-2; Jan 2, 2003 1:27PM - VILLEGAS

Permit Unit Requirements for C-3929-2-2 (continued)

Page 3 of 3

25. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201 and 4703]
26. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080]
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30. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100, 7.0]
31. The permittee shall submit a written report to the APCO for each calendar quarter, within 30 days of the end of the quarter, including: time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; averaging period used for data reporting shall correspond to the averaging period for each respective emission standard; applicable time and date of each period during which the CEM was inoperative (except for zero and span checks) and the nature of system repairs and adjustments; and a negative declaration when no excess emissions occurred. [District Rule 1080]
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34. Any open area having 3.0 acres or more of disturbed surface area, that has remained undeveloped, unoccupied, unused or vacant for more than seven days shall comply with the requirements of SJVUAPCD District Rule 8051 (11/15/01), unless specifically exempted under section 4.0 of Rule 8051. [District Rule 8051]
35. Any new or existing public or private paved or unpaved road, road construction project, or road modification project shall implement the control measures and design criteria of, and comply with the requirements of SJVUAPCD District Rule 8061 (11/15/01) unless specifically exempted under section 4.0 of Rule 8061. [District Rule 8061]
36. Any unpaved vehicle/equipment traffic area of 1.0 acre or larger shall comply with the requirements of SJVUAPCD District Rule 8071 (11/15/01), unless specifically exempted under section 4.0 of Rule 8071. [District Rule 8071]

These terms and conditions are part of the Facility-wide Permit to Operate.

APPENDIX F

Original Property Owners List

**Property Owners within 1,000 Feet of the GWF Henrietta Peaker Project and within
500 Feet of Associated Linear Facilities**

Assessor's Parcel No.	Property Owner	Address
024-190-065 APN for project site TBD	John D. & Sally L. Oliveira	8519 24 th Avenue Lemoore, CA 93245
024-190-002	Pacific Gas & Electric	One Market, Spear Tower, Suite 2400 San Francisco, CA 94105
024-190-023	John D. & Sally L. Oliveira	8519 24 th Avenue Lemoore, CA 93245
024-190-066	John D. & Sally L. Oliveira	8519 24 th Avenue Lemoore, CA 93245
024-190-069	Newstar Fresh Foods LLC	126 Sun Street Salinas, CA 93901
024-260-004	Nancy L. Oliveira Revocable Trust	9235 24 th Avenue Lemoore, CA 93245
024-260-018	John D. & Sally L. Oliveira	8519 24 th Avenue Lemoore, CA 93245
024-270-006	Nancy L. Oliveira Revocable Trust	9235 24 th Avenue Lemoore, CA 93245
024-270-007	Nancy L. Oliveira Revocable Trust	9235 24 th Avenue Lemoore, CA 93245
024-270-008	Nancy L. Oliveira Revocable Trust	9235 24 th Avenue Lemoore, CA 93245
024-270-009	Jack R. Clinton, et al	1718 Marion Drive Glendale, CA 91205
024-270-010	Nancy L. Oliveira Revocable Trust	9235 24 th Avenue Lemoore, CA 93245
024-270-011	Robert & Eleanor M Sawyer	Star Rt, 1 Box 273 Posey, CA 93260
024-270-012	Dr. Seymour, et al	716 N. Palm Drive Beverly Hills, CA 90212
024-270-013	Helen J. Carey	2 Isabella Avenue Atherton, CA 94027
024-270-014	Arthur B. Moss	37586 Medjool Avenue Palm Desert, CA 92211
024-270-015	Nancy L. Oliveira Revocable Trust	9235 24 th Avenue Lemoore, CA 93245
024-270-016	Nancy L. Oliveira Revocable Trust	9235 24 th Avenue Lemoore, CA 93245
026-001-038	West Grand Partners	724 S. Lemoore Avenue Lemoore, CA 93245

Assessor's Parcel No.	Property Owner	Address
026-001-041	John D. & Sally L. Oliveira	8519 24 th Avenue Lemoore, CA 93245
026-001-042	West Grand Partners	724 S. Lemoore Avenue Lemoore, CA 93245
026-020-010	Rancho Naranja	23311 Newton Avenue Stratford, CA 93266
026-020-015	John D. & Sally L. Oliveira	8519 24 th Avenue Lemoore, CA 93245
026-020-016	K J C Farms	23311 Newton Avenue Stratford, CA 93266

